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Physically, your prescription pharmacy is a relatively simple structure. Yet, at its disposal is the combined power of all the manufacturing resources of the world. Huge engines, giant extraction tanks, tons upon tons of mechanical equipment are employed in the production of the countless therapeutic agents which your pharmacist can dispense at a moment's notice. Vitamins, liver extracts, germicides, barbiturates, biologicals are but a few of the many. You can depend upon your pharmacist for a full measure of professional service. His facilities are supported by the power of the leading manufacturers in his field. Eli Lilly and Company, Indianapolis 6, Indiana, U.S.A.



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Maltine with Vitamin Concentrates...
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- **VITAMIN A** 10,000 U.S.P. Units
- **VITAMIN B₁** 3 Milligrams
Thiamine Hydrochloride
- **VITAMIN B₂** 4 Milligrams *Riboflavin*
- **VITAMIN D** 1000 U.S.P. Units
- **NICOTINAMIDE** 40 Milligrams
- **PANTOTHENIC ACID** 350 Micrograms
- **DICALCIUM PHOSPHATE** 17 Grains

Available through all pharmacists in bottles of 12 fluid ounces.

THE Maltine COMPANY
NEW YORK
Established 1875

*The macrocytic anemias
in pregnancy
respond to*

*Solution
LIVER EXTRACT
Lederle*



MACROCYTIC ANEMIAS in pregnancy resemble other macrocytic anemias. This type of anemia frequently responds best to a complete anti-pernicious anemia regime, including the injection of liver extract, vitamin therapy, a diet adequate in protein, and iron by mouth when there is evidence of hypochromia.

REFINED SOLUTION LIVER EXTRACT *Lederle* is a potent preparation of the antianemia substance which, because of exceptional care and expense in preparation, causes a minimum of discomfort at the time of injection. Use of this liver extract may be expected to result in a prompt reticulocytosis, a progressive reversal of the abnormal erythrocyte picture, and simultaneous correction of symptoms.

PACKAGES.

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(2) 1-5 cc. vial (10 U.S.P. XII injectable units per cc.)
(3) 1-10 cc. vial (10 U.S.P. XII injectable units per cc.)

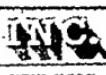
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(4) 3-3 cc. vials (10 U.S.P. XII injectable units each vial)

SOLUTION LIVER EXTRACT CONCENTRATED
(5) 3-1 cc. vials (15 U.S.P. XII units each)
(6) 1-10 cc. vial (150 U.S.P. XII units)

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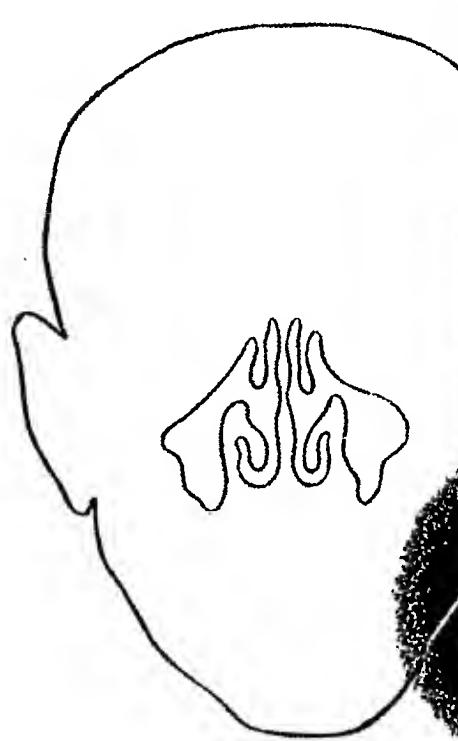
30 ROCKEFELLER PLAZA, NEW YORK 20



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HAY FEVER

Prolonged relief of congestion in allergic rhinitis
... not followed by secondary vasodilatation



12
11
10
9
8

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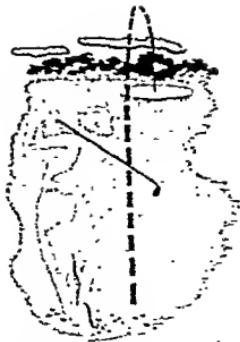
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Aqueous, isotonic solution, buffered at pH 6.2
readjusts alkaline pathologic secretions to
normal acid range, favors ciliary action, facil-
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And, in chemically combining Neo-Synephrine with the minimum desired amount of sulfathiazole, the vasoconstrictive power and the full bacteriostatic action of these two great therapeutic agents remain undiminished. The solution is notable for low toxicity, prolonged duration and is effective even on repeated administration.

Neo-Synephrine Sulfathiazolate



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For year-round use, Super D* Concentrate offers the advantages of a specially defatted natural preparation which supplies vitamin D exclusively from cod liver oil and vitamin A from cod and other selected fish liver oils. It is easy to digest even in the hottest weather and is well tolerated by the youngest infant.

In summer as well as in winter, for routine administration of drop dosage vitamin D, use Super D Concentrate. Five "standardized" drops (1.72 minims) daily supply 500 U. S. P. units of vitamin D and 5,000 U. S. P. units of vitamin A. Available in 5 cc., 10 cc., and 30 cc. bottles.

*Trademark Reg. U. S. Pat. Off.

(1) Park, E. A.: J.A.M.A. 115:370-379 (Aug. 3) 1940.

Super D Concentrate

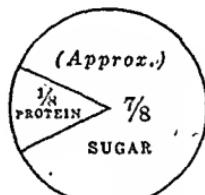
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*Because plain, unflavored Knox Gelatine
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BUT THEY NEED NOT STAND ALONE. Their uncertain pregnancies can be protected, and safe-carrige to term assured with **PROLUTON** and **PRANONE**, pure crystalline preparations for *corpus luteum* hormone therapy.

PROLUTON (pure crystalline progesterone) for intramuscular injection, ampules containing 1, 2, 5 and 10 mg.

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TABLETS FOR *Oral use-*
AMPULS FOR *Injection*

There has long been a real need for a potent, mercurial diuretic compound which would be effective by mouth. Such a preparation serves not only as an adjunct to parenteral therapy but is very useful when injections can not be given.

After the oral administration of Salyrgan-Theophylline tablets a satisfactory diuretic response is obtained in a high percentage of cases. However, the results after intravenous or intramuscular injection of Salyrgan-Theophylline solution are more consistent.

Salyrgan-Theophylline is supplied in two forms:

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SOLUTION in ampuls of 1 cc., boxes of 5, 25 and 100; ampuls of 2 cc., boxes of 10, 25 and 100.

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REPORTING on the satisfactory remission of symptoms with ERTRON* in the treatment of chronic arthritis, investigators stress the importance of adequacy in dosage and period of treatment.

The *safety* of ERTRON makes this procedure entirely rational. Summarizing their results with ERTRON over a period of six years, Snyder et al† state: "We have never seen any evidence of serious toxicity as a result of the use of this form of treatment."

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*Reg. U. S. Pat. Off.

†Snyder, R. G., Squires, W. H. and Forster, J. W.: A Six-Year Study of Arthritis Therapy, Indus. Med., 12:291-297 (May) 1943

Ertron Parenteral

For the physician who wishes to supplement the routine oral administration of ERTRON by parenteral injections, ERTRON Parenteral is avail-



able in packages of six 1 cc. ampules. Each ampule contains 500,000 U.S.P. units of electrically activated, vaporized ergosterol (Whittier Process).

ERTRONIZE the Arthritic

Ertronize Means: Employ ERTRON in adequate dosage over a sufficiently long period to produce beneficial results. Gradually increase the dosage to that recommended or to the toleration level. Maintain this dosage until maximum improvement occurs.

ERTRON alone—and no other product—contains electrically activated, vaporized ergosterol (Whittier Process).

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New reprint available on cigarette research—Archives of Otolaryngology, March, 1943, pp. 404-410. Camel Cigarettes, Medical Relations Division, One Pershing Square, New York 17, N. Y.

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GASTRON is indicated as replacement therapy in atrophic gastritis, and as an aid in the treatment of chronic gastritis. It is of value as adjunctive treatment in the anemias, and in certain gastric deficiencies associated with convalescence and old age. It is worthy of trial in the nausea and vomiting of pregnancy.

GASTRON with IRON is available also for prescription use.

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SUPPLEMENT for
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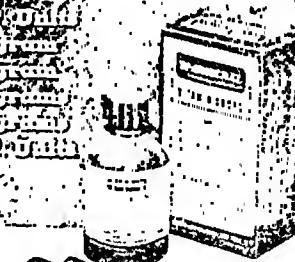
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In 15 cc. and 45 cc.
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- Liberal potencies
- Contain no alcohol
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The JOURNAL LANCET

Minneapolis, Minnesota
August, 1944

Vol. LXIV, No. 8
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Transactions of the North Dakota State Medical Association

Fifty-Seventh Annual Session

Fargo, North Dakota

May 7, 8, 9, 1944

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PROCEEDINGS
of the
HOUSE OF DELEGATES
FIFTY-SEVENTH ANNUAL MEETING
of the
NORTH DAKOTA STATE MEDICAL
ASSOCIATION

First Session, Sunday, May 7, 1944

The House of Delegates convened in the South Room of the Gardner Hotel, Fargo, North Dakota, and was called to order at 8:00 P. M. by the Speaker, Dr. John H. Moore.

Dr. R. W. Van Houten, Oakes, chairman of the committee on credentials, announced that fifteen delegates had presented their credentials and were qualified.

The Secretary called the roll; fourteen delegates and one alternate responded, and the Speaker declared a quorum present. The delegates present were: Doctors J. H. Fjelde, Fargo; E. H. Boeth, Alternate, Buffalo; C. J. Glaspel, Grafton; W. A. Wright, Williston; P. H. Woutat, Grand Forks; D. J. Halliday, Kenmare; A. H. Reiswig, Wahpeton; A. W. MacDonald, Valley City; G. M. Constans, Bismarck; C. C. Smith, Mandan; R. H. Waldschmidt, Bismarck; R. W. Van Houten, Oakes; A. P. Nachtway, Dickinson; W. W. Wood, Jamestown; and R. C. Little, Mayville.

The following qualified delegates and alternate delegates arrived shortly after the roll was called: Doctors W. E. G. Lancaster, Fargo; John C. Fawcett, Devils Lake; W. A. Liebeler, Alternate, Grand Forks; M. J. Moore, New Rockford.

Introduction of President

The Speaker introduced the President, Dr. Frank Darrow, who delivered the following address:

Mr. Speaker; Members of the House of Delegates: This is the beginning of a year of business that will probably start some very important things for the medical profession and, I hope, settle some questions which have been bothering the men all over the state. Whatever you do this year, put in a man that represents you in our Congress. When you send someone to the American Medical Association, stand behind him and tell the public that you stand behind him. If I get over to you at this time nothing but one point, I'll be satisfied. The one idea is that doctors are all individuals and no one can speak for them as a whole. It is a very sorry state of affairs. This can not happen if you back up your elected representatives. Without any further thoughts, I turn you back to your genial Master of Ceremonies, Doctor Moore, and I trust the proceedings will be very successful.

On motion made by Dr. Halliday, seconded by Dr. Waldschmidt and carried, the reading of the minutes of the 1943 session as published and circulated in the August, 1943, issue of the JOURNAL-LANCET were dispensed with and the minutes adopted.

REPORT OF THE SECRETARY

Dr. L. W. Larson, Secretary, presented his report as printed in the handbook. The report was referred to the Reference Committee on Reports of the Secretary and Special Committees.

The total membership for 1943 was 403. Of this number, 331 were paid-up members, 11 honorary members, and 61 members had their dues cancelled because of military service.

A comparison of last year's membership figures with the preceding four years is shown in Table No. 1. It is of interest to note that the total membership has remained almost stationary since 1939. The revenue from dues has decreased, especially during the past two years because of the relatively large number of members whose dues have been cancelled because of military service. It may not be possible for the Association to increase its reserve until the war is over and its revenue increases, because the cost of operation remains fairly constant.

TABLE NO. 1
Comparison of Annual Membership

	1939	1940	1941	1942	1943
Paid memberships	394	387	374	366	331
Honorary memberships	3	11	12	10	11
Dues cancelled, military service	-	-	14	32	61
Total	397	398	400	408	403

Table No. 2 shows that the dues for 1944 are being paid promptly. To date 304 have paid their current dues and 26 are delinquent. Five new members have joined during the past year and 10 members have died.

TABLE NO. 2

	May 5	April 20
Paid-up members	1941	1942
Honorary members	339	352
Dues cancelled, military service	12	10
Total	351	393
	1943	304
	1944	10
	31	58
	384	373

Field Work. Your Secretary has been unable to visit all the district societies during the past year. The reports of the Councilors indicate that the majority of the component societies are active and doing good work. Some of the smaller societies have had few meetings but their individual members have managed to attend several meetings of larger nearby societies. Your Secretary has noted an increased interest in medical economics on the part of the members of the societies he has visited.

Committees. Unfortunately the war has curtailed the activities of committees, especially during the past year. However, their reports, as published in the handbook, indicate that they are aware of the problems confronting our profession and are laying plans for solving them. The reports of the committees on Medical Economics and Maternal and Child Welfare are especially noteworthy this year and merit your earnest consideration.

E.M.I.C. Program. The news-letters sent out by the Secretary during the past year and the report of the Chairman of the Council in which the official action of the Council on this problem is stated, reveal that the official attitude of the Association toward this program has not changed since our last annual meeting. Pressure from lay groups and individuals caused the state health department to inaugurate recently a program which is acceptable to the Children's Bureau. The plan differs from the original plan submitted by the Children's Bureau a year ago only in a few minor details. It still contains the major points to which the Association has repeatedly offered its protests. The indications are that it will be accepted by individual physicians and hospitals, many with reluctance, because they are not in a position to do otherwise.

Opposition to the E.M.I.C. Program has mounted throughout the nation. Protests are flowing in to senators and representatives over the manner in which the program is being forced upon the profession by a federal agency, the ultimate objectives of which are questioned by many physicians. Your Association has joined in the fight to amend the appropriation for the Children's Bureau so that this agency will be forced to accede to the wishes of those who are to administer the services. Inasmuch as the majority of congressmen, especially representatives, are up for re-election this year it is likely that they will listen to their constituents more than they have in the past. A recent departure from the "rubber-stamp" type of congress is a hopeful sign.

Medical Economics. The Wagner-Murray-Dingell Bill (Senate Bill 1161) has crystallized the attention of the people on socialized medicine, in spite of the current war emergency. It is the culmination of forces, both in and out of government, which have grown in strength, especially during the past decade. Organized medicine, as exemplified by the American Medical Association, has been branded as reactionary and obstructive. The American Medical Association has fearfully and reluctantly acceded to the demands of the majority of its members in recently establishing an office in Washington. How much it can and will do, remains to be seen. Physicians in certain localities and regions in the country have become impatient with the conservative attitude of the American Medical Association and have formed organizations for the specific purpose of influencing national legislation as it pertains to medical practice. The American Association of Physicians and Surgeons is the most vociferous. The United Public Health League, formerly the Western States Public Health League, which is sponsored primarily by California physicians, but also includes physicians from the

states of Arizona, Colorado, Idaho, Nevada and Utah, is establishing an office in Washington. It seems a pity that a united front cannot be presented by a single organization, such as the American Medical Association. The latter, however, has refused to depart from its stated purpose of being primarily a scientific organization and unless it changes its program, it may see the development of another national organization devoted entirely to the solution of the problems of medical economics.

The recent survey of public opinion made by the National Physicians Committee revealed the following:

- (a) The medical profession is most highly esteemed.
- (b) The people do not want "political medical care," but
- (c) They demand a method of easier payment of the costs of unusual and/or prolonged illness.

If this survey is indicative of public opinion, a means for insurance against the hazards of illness must be provided. The important point is the form that this insurance is to take. Proponents of the Wagner-Murray-Dingell Bill insist that it must be compulsory and that only government can provide it. Organized labor (CIO and AFL) agrees. The Wagner-Murray-Dingell Bill probably will not be passed in its present form, but concessions to pressure groups may result in a compromise which will lead to a broadening of the program later, unless ways and means can be devised to stop it. This will involve the development of more prepaid medical and hospital insurance plans sponsored by physicians and hospitals, and the entrance of more insurance companies into the field of health and accident insurance. There may be a grave question as to which group, physicians or the public, is responsible for the development of a sound plan of voluntary health insurance, but that there is need for concerted action on the part of both public and profession is apparent, if medical chaos is to be averted.

North Central Medical Conference. This is an organization of physicians from Minnesota, Wisconsin, Iowa, Nebraska, North and South Dakota, who are either officers or members of their State Medical Associations and are interested in the problems of medical economics, which are national and also regional in their effects upon the practice of medicine. It was this organization which began the campaign to broaden the program of the American Medical Association by the establishment of a Washington office. Representatives from each state attended the Congressional Conference held in Minneapolis last August, which is summarized in the report of the Chairman of the Council. Your Secretary was honored by being made President of the Conference for this year and believes that the Conference merits the support of our Association. The Conference can discuss economic problems of mutual interest, and by presenting the united front of its six member states, will warrant the respect for its views of those in government circles who are to determine the future of the practice of medicine in this country.

RECOMMENDATIONS

1. That the Committee on Public Policy and Legislation be authorized to submit a pointed questionnaire on questions of medical economics to all candidates for nomination to congressional offices this year, and that photostatic copies of the answers be sent to the members of the Association;

2. That the Council be requested to allot \$50.00 per year to the North Central Medical Conference;

3. That the following resolution be submitted and adopted:

Whereas the program now in operation for maternal and infant care for wives and infants of enlisted men in the four lower grades is unsatisfactory to the medical profession, and

Whereas the emergency provisions for the carrying on of the program as now in operation expire June 30, 1944, be it therefore

Resolved, that the House of Delegates of the North Dakota State Medical Association recommends that on that date Congress abandon the program as now constituted, and be it further

Resolved, that under any new program after June 30, 1944, the benefits be designated supplemental aid and take the form of an allotment for medical, hospital, maternity and infant care, similar to the allotments already provided for the maintenance of dependents, leaving the actual arrangements with respect to fees to be fixed by mutual agreement between the enlisted man's wife and the physician of her choice, and be it further

Resolved, that the American Medical Association be urged to present to the appropriate committees of Congress a concrete plan embodying this principle, to the end that the present and ultimate best interests of the wives and infants of men in service be served during the present emergency.

REPORT OF THE TREASURER

Dr. W. W. Wood gave his report as published in the handbook. Since this report was a part of the report of the Council, the Speaker referred the report to the Reference Committee on Reports of the Council, Councillors, and Delegate to the American Medical Association.

REPORT OF THE CHAIRMAN OF THE COUNCIL 1943-1944

Dr. N. O. Ramstad, chairman, presented the following report which was referred to the Reference Committee on Reports of the Council, Councillors, and Delegate to the American Medical Association:

Annual Meeting of the Council May 29, 1943

The Council of the North Dakota State Medical Association met during the annual meeting of the Association in Bismarck, May 9, 1943. Eight members were present.

President A. R. Sorenson addressed the Council about various matters of interest to the medical profession.

Secretary L. W. Larson reported regarding the Procurement and Assignment Service of which he is state chairman. He also presented a list of the property in the Secretary's office. At the present time the value after depreciation is \$97.09.

Treasurer W. W. Wood presented his annual report which was referred to an auditing committee consisting of Doctors Archie McCannel and P. H. Burton.

The second meeting of the Council was held on May 10, 1943. The auditing committee reported that they found the Treasurer's books and accounts to be correct. This report was approved by the Council. The bonds of the Secretary for \$2,000.00 and the Treasurer for \$5,000.00 were ordered renewed.

Appropriations for the year beginning April 1, 1943, were authorized not to exceed the following amounts:

Committee on Tuberculosis	\$ 50.00
Stenographer — state meeting	100.00
Emergency Fund to be expended by the Chairman of the Council as needed	100.00
Emergency Fund for the Council	250.00
Annual meeting in Bismarck	200.00
Delegate to the A.M.A. meeting with the understanding that he is to submit itemized statement	125.00
JOURNAL-LANCET	not over 800.00
Secretary, including stenographer	1,200.00
Postage and office supplies	150.00
Telephone and telegrams	35.00
Travel expense	150.00

Total \$3,160.00

An Editorial Committee for the JOURNAL-LANCET was appointed consisting of Dr. W. H. Long, Dr. Harry D. Benwell, Dr. G. W. Toorney and Dr. J. O. Arnson.

A committee to approve the publication of association transactions in the JOURNAL-LANCET was appointed consisting of Dr. L. W. Larson, Dr. J. O. Arnson and Dr. N. O. Ramstad.

Dr. George M. Williamson was elected Secretary and Dr. N. O. Ramstad Chairman.

On August 16, 1943, Secretary L. W. Larson and the Chairman of the Council attended a conference in Minneapolis between senators and congressmen of five states in this area and representatives of business and professional men of these states. Medical men from these states met, planned what should be presented by the medical profession, and appointed Dr. A. W. Adson of Rochester, Minnesota, to represent them at the meeting. Dr. Adson made an admirable address before the conference in which he outlined the views of the medical profession on many problems and answered the questions put to him by the senators and congressmen who were present. I believe that

this conference did much to develop a better understanding between the doctors of the northwest and the members of congress from these states.

President Frank Darrow appointed a committee consisting of Dr. John H. Moore, Dr. J. F. Hanna, and Dr. N. O. Ramstad to confer with representatives of the North Dakota Hospital Association and with Dr. F. J. Hill and others representing the North Dakota state public health department in order to consider the Emergency Maternal and Infant Care Program of the United States Children's Bureau. This committee met in Fargo on September 12, 1943, and agreed on a plan which they believed would be satisfactory to the public, the medical profession in the state, the hospitals, and the state health department. It recommended a modification of the Children's Bureau plan as follows:

"It is proposed by the North Dakota State Medical Association that such funds as may be allocated by the Children's Bureau under Title V Part 1, E.M.I.C., Fund E, be administered as follows:

1. A stated allotment for maternity and infant care, similar to the allotments already provided for the maintenance of dependents of men in the Armed Forces of the fourth, fifth, sixth, or seventh grades, be made, leaving the actual arrangement as to the amount of fees to be fixed by mutual agreement with the wife and the physician of her choice.

2. This allotment shall be \$50.00 for medical maternity care and not to exceed \$10.00 per week for medical infant care for a total of not over five weeks in any one illness.

3. Upon completion of the maternity care, the wife of the service man shall make application to the state director of the Maternal and Child Hygiene Division of the North Dakota state department of health for her allotment, or, similarly, in the case of illness of the infant under one year of age, for the allotment to which she is entitled at the termination of that infant's illness, and shall supply, at the same time, the necessary documentary evidence of her husband's military status.

4. When adequate proof of claim for the allotment has been submitted, the director of the Maternal and Child Hygiene Division of the North Dakota state department of health shall prepare the proper voucher for the woman's signature and, after proper notarization, this voucher shall be submitted to the North Dakota state auditor for payment from the state's share of Fund E, allocated for this purpose.

5. Recognizing the need for consultation service, it is recommended that a plan for consultation service be developed by the state health department in cooperation with the state medical association."

On September 17, 1943, President Frank Darrow requested a special meeting of the Council to consider the Emergency Maternal and Infant Care program and the plan recommended by the committee of the state association.

A special session of the Council was called and met in Fargo on October 3, 1943. Seven members of the Council attended. There also were present President Frank Darrow, Secretary L. W. Larson, Capt. A. C. Fortney, representing the State Selective Service, Dr. W. W. Wright, Chairman of the Committee on Medical Economics, Dr. J. F. Hanna, Dr. F. J. Hill, state Health Officer, and Dr. T. Q. Benson of Grand Forks. The North Dakota State Hospital Association was represented by Mr. Tolleson of Fargo and Mr. Overland of Grand Forks.

Secretary L. W. Larson discussed the Maternal and Infant Care Program and the various developments to date. He called attention to the fact that the House of Delegates, at its last meeting, had rejected the plan as submitted. The Council and others present discussed thoroughly the plan submitted by the committee after considering each paragraph carefully. The plan was adopted by the Council with instructions that it be submitted to the proper authorities through Dr. F. J. Hill, state health officer.

On November 15, 1943, Dr. F. J. Hill received notice from the Children's Bureau that they could not approve the plan submitted by the Council. The more recent developments are covered in the News Letter to all members sent by Secretary L. W. Larson on March 14, 1944.

Respectfully submitted,

Signed: N. O. RAMSTAD, M.D.,
Chairman of the Council.

REPORTS OF COUNCILLORS

The following Reports of Councillors as published in the handbook were referred to the Reference Committee on Reports of the Council, Councillors, and Delegate to the American Medical Association.

First District

CASS COUNTY MEDICAL SOCIETY. Since the last meeting of the state association it has had a few changes in membership. Drs. J. B. James of Page, and H. J. Skarshaug of Washburn, have died. One new member was elected in 1944, Dr. C. O. Heifman of Fargo. At present there are fifty-one members in civilian practice and thirteen in the armed forces. Membership of two doctors was discontinued during 1943 for failure of payment of dues. Both of these have moved elsewhere.

The Society has attempted to improve the standards of its scientific programs and has had a number of speakers from out of the city during its monthly meetings. Attendance has been good. A major portion of the discussion at the meetings has centered around medical economics, particularly in the matter of maternal and child welfare.

Because of the increased cost of food, etc., and the decreased membership, local dues have been raised to ten dollars, making a total of twenty dollars a year.

For the last few months the Society has been active in making preparations for the state medical meeting to be held in Fargo.

RICHLAND COUNTY MEDICAL SOCIETY. The following report is submitted by Dr. A. H. Reiswig, Secretary:

"I might say that there are only seven active men left in the whole county and practically all that we have done has been to hold our little society together. We have visited the Cass County Medical Society as often as practical. We have not had any meeting this past year, except business meetings."

L. A. NASH, M.D., Councillor.

Second District

DEVILS LAKE DISTRICT SOCIETY completed a very quiet year. There were only three meetings held during 1943. The programs were largely routine business, with case reports by members, discussion of medical economics, and outside speakers on two occasions. Attendance at meetings has dropped appreciably since the war began, probably due to a combination of loss of membership and consequently more work for the rest to do.

This district has now five members serving with the armed forces, there are 21 active members, and one life member. Also, in this district there are five physicians apparently not interested in society membership.

Loss in membership over the past year, due to death, numbered three men. These included: Dr. A. O. Arneson, McVille; Dr. W. C. Fawcett, Starkweather; and Dr. K. Olafson, Cando.

Although in the past we have had but four regular meetings each year, an attempt is now being made to have a meeting every two months.

JOHN C. FAWCETT, M.D., Councillor

Third District

GRAND FORKS DISTRICT MEDICAL SOCIETY has had a good year, chiefly because it is officered by men who have provided interesting programs for each meeting, and a high average of attendance of members from all parts of the district.

There are 59 registered physicians in this district, five of whom are honorary members and three others belong to adjoining societies. The boundaries of this district were arranged many years ago before the advent of the automobile and good roads. I again suggest that the boundaries of the various state societies be re-arranged along convenient auto roads to conform to the place of meeting, this making it possible for men to belong to societies most convenient to their place of practice. I urge careful consideration by our officers for the coming year of this problem. Another matter which should receive consideration is the plan under which our state society is working. Our constitution and by-laws were changed a few years ago so that the entire business of the Association is done by the House of Delegates consisting of about 19 members, usually half of this number is attending as a delegate for the first time, reports of standing committees are presented, some of which are very important, and of interest to every member in attendance, these

reports are referred to reference committees and nothing further is heard from them so far as the rank and file of the association is concerned. Why not return to our former plan of doing business with members of the Council, many of whom have served their districts for many years and who understand and know the needs and desires of all members, taking point to urge all members in attendance to attend the business meeting. Ours is a small society, anything that can be done to stimulate interest throughout the state is helpful.

At this time I wish to thank the Association for the honor of serving this Council for many years, I have given much thought and time to affairs of medicine in our state. My term as councillor expires this session, and I ask that my name be not considered for re-election. It is not that I have lost interest, but I would like to have a younger man take the place I have had for a long time.

G. M. WILLIAMSON, M.D., Councillor.

Fourth District

NORTHWEST DISTRICT MEDICAL SOCIETY has had a very successful year. We have had regular monthly meetings, with one exception when the weather interfered with our plans. The meetings have been well attended and the members have shown a keen interest in the business of the Society.

The meetings have been held alternately at Trinity and at St. Joseph's Hospital, except during the midsummer months. A brief summary of our meetings follows:

January 28, 1943. A dinner meeting was held at St. Joseph's Hospital. Dr. Olaf Haraldson and Mr. Bavonne of the Minot health unit discussed slaughtering plants from the standpoint of meat inspection facilities.

February 2, 1943. At a dinner meeting at Trinity Hospital, Dr. G. S. Seiffert discussed nail polish dermatitis.

March 25, 1943. Meeting at St. Joseph's Hospital. Mr. Neil Weber, Professor of Entomology at the University of North Dakota discussed ant-borne diseases and the recognition of various types of ants.

April 29, 1943. Meeting at Trinity. Mr. Eagles of Fargo, District Representative of the Blue Cross Hospital Plan, explained the plan thoroughly.

May 25, 1943. There was a dinner meeting at St. Joseph's Hospital, with a general discussion. No paper was given.

June, 1943. A picnic was planned at the Country Club, but a long period of rainy weather forced cancellation of the meeting.

July, 1943. A picnic was held at the Minot Country Club. There was no scientific program.

August, 1943. Dr. Wheelon put on one of his famous chicken dinners at the Country Club. No scientific program.

September, 1943. At a dinner meeting at St. Joseph's Hospital, Dr. White of the Minot Health Unit discussed restaurant sanitation, and showed a film on the treatment of syphilis.

October, 1943. The meeting was at Trinity Hospital. Dr. Stanley R. Maxine, assistant professor of surgery at the University of Minnesota, gave a paper on abdominal trauma.

November, 1943. The meeting was at St. Joseph's Hospital. Dr. J. K. Anderson of Minneapolis gave a paper on the management of proctological problems from the office standpoint.

December, 1943. Meeting at Trinity Hospital. Talk on encephalography by Dr. R. E. Dyson. Election of officers.

During the year three members were transferred to other societies, and three new members were admitted. One member, Dr. Olaf Haraldson, was lost by death. Twelve of our members are now in the armed forces. There are now forty-one members in good standing in the society.

ARCHIE D. McCANNEL, M.D., Councillor.

Fifth District

Herewith is the report of the Fifth District Society for the year 1943-1944:

Officers of the society elected at the annual meeting in January, 1944, were as follows: President, A. W. Macdonald; vice president, J. Van Houten; secretary and treasurer, C. J. Meredith; board of censors, Fred Brown, L. Almklov, and C. A. Platou; delegate to state convention, A. W. Macdonald; alternate, Fred Brown.

Our society now has a membership of ten, five less than in 1941. We have lost one member by death, and another is temporarily incapacitated by illness. We gained one new member, Dr. J. P. Merrett, by transfer from the Southern District society. Dr. E. L. Sederlin was a member for a few months, transferred to our Society from the Cass County society, and later obtained his demit to transfer to an eastern United States society. Two of our members, Dr. Paul T. Cook and G. Alfred Dodds, are in military service.

Four meetings were held during the year. Matters discussed and acted on were as follows: Physical examination of grade and high school children in the Valley City schools by the local physicians was arranged for; a proposal to have a representative of the medical society on the county welfare board was rejected; a discussion of the Emergency Maternal and Infant Care Program; proposals by the divisional state health department to have the cooperation of the physicians in pre-school conferences, and to have the local physicians conduct immunization clinics were rejected.

Because of our small membership, and the distance to be traveled by some of our members, no scientific programs were planned; but some of our members attended two of the scientific meetings of the Stutsman County society, and two of the Cass County society.

Valley City is seriously affected by the physician shortage, there being now only five men in general practice, two of whom have reached an age necessitating a limitation of their physical activities. One physician in our district is not a member of the society. We still have one unlicensed individual practicing medicine at Dazey, North Dakota; this in spite of repeated requests by our society to the State Board of Medical Examiners to effect his removal.

Excellent harmony and cooperation prevails in the society.

Respectfully submitted,
C. J. MEREDITH, M.D., Councillor.

Sixth District

Four meetings of the Sixth District medical society were held during the past year. The meetings have been well attended, the programs have been good and the professional and business affairs of the Society have been efficiently conducted.

The officers of the society are: President, Dr. M. S. Jacobson, Elgin; vice president, Dr. P. W. Freise, Bismarck; secretary-treasurer, Dr. W. B. Pierce, Bismarck; censors, Drs. W. H. Bodenstab, F. B. Strauss and G. R. Lipp, Bismarck.

The delegates to the House of Delegates are: Dr. C. C. Smith, Mandan; Dr. R. H. Waldschmidt, Bismarck; Dr. G. M. Constans, Bismarck.

The total paid membership is sixty-six.

Papers presented during the year are as follows:
"Infant Mortality Rate in Five Years of Country Practice," Dr. M. S. Jacobson, Elgin.
"Pyelitis Cystica," Drs. N. O. Brink, H. M. Berg, and L. W. Larson, Bismarck.

Demonstration of Results from Radiation Therapy—Dr. W. H. Stenstrom, University of Minnesota.

"Atypical Pneumonia," Dr. Adolph Rumreich, Chicago.

"Recent Progress in Nasal Treatment," Dr. G. A. Larson, Fargo.

Mt. A. B. Crisler, district supervisor of the narcotic bureau, discussed the Harrison narcotic act.

Movie—"Caudal Anesthesia in Obstetrics," by the Eli Lilly company.

The following doctors from this area are in the Medical Corps of the United States Army: Drs. R. W. Henderson, C. A. Arneson, Donn R. Driver, Robert F. Nuessle and G. S. Ahearn, Bismarck; Dr. M. F. Williams, Linton; Dr. Ralph Vinje, Hebron; Dr. A. J. Swingle, Mandan.

In the medical corps of the United States Navy is Dr. G. E. Doty, Jr., Bismarck.

During the year we have lost by death Dr. R. C. Thompson of Wilton and Dr. H. J. Skarhaug, Washburn.

The burden on the physicians of the district has been unusually heavy because of the absence of so many in the service of our country. They have all done their utmost to see that the public is given every possible medical care during the existing emergency.

N. O. RAMSTAD, M.D., Councillor.

Seventh District

I beg leave to present the following report of the condition of the SUTSMAN COUNTY MEDICAL SOCIETY for the year 1943.

There are twenty-one physicians licensed to practice in this county. Nineteen are actively practicing at the present time, two men are in the service.

We have had two meetings during the year. Dr. Sederlin, district health officer, gave a very comprehensive report of the findings in the course of examining the sixth and ninth grade pupils of the schools of the county.

At our second meeting Dr. M. Dockerty of Rochester, Minnesota, gave a very interesting talk with photographic slides on the subject of "Endometriosis".

The following officers were elected: President, Dr. J. Sorkness; vice president, Dr. F. O. Woodward; secretary and treasurer, Dr. E. J. Larson; delegate, Dr. W. W. Wood; alternate, Dr. C. W. Robertson; censor for 3 years, Dr. F. O. Woodward; censor for 2 years, Dr. T. L. DePuy; Censor for 1 year, Dr. George Holt.

The attendance at the meetings has been very good, averaging around fifteen per meeting.

Respectfully submitted,

P. G. ARZT, M.D., Councillor.

Eighth District

Due to the small number of members in the SOUTHERN DISTRICT SOCIETY there have been no meetings during the past year. However, some of the members have attended meetings in neighboring districts.

Officers for the year are: President, Dr. F. E. Wolfe, Oakes; secretary-treasurer, Dr. H. J. Meunier, Oakes; delegate, Dr. R. W. Van Houten, Oakes; alternate, Dr. F. E. Wolfe, Oakes.

There are at present six paid-up members of the Southern district.

F. W. FERGUSON, M.D., Councillor.

Ninth District

The TRI-COUNTY MEDICAL SOCIETY has felt the pressure of work and travel restrictions during the past year. Only two meetings were held.

At the October meeting, Dr. Harry Fortin, on a hunting trip, was entertained and spoke to the Society.

In January the Society met for the election of officers.

At both meetings, the discussion centered around the Wagner bill and obstetrical care for soldiers' wives.

The Society voted to contribute to the National Physicians' Committee.

All qualified members of this district are society members.

Respectfully submitted,

A. E. WESTERVELT, M.D., Councillor.

Tenth District

The SOUTHWESTERN DISTRICT has had a successful year, during which four meetings were held. The scientific parts of the meetings were usually supplemented with movies of different obstetrical or surgical procedures. The meetings were well attended, even though one meeting had to be postponed because of bad weather.

At present we have 19 active members, 2 absent members, 1 non-member, and 2 members in the armed forces.

W. H. GILSDORF, M.D., Councillor.

REPORTS OF STANDING COMMITTEES

The following reports of Standing Committees were referred to the Reference Committee on Reports of Standing Committees.

Medical Education

In our report of 1943 we indicated certain anticipated changes because of the war situation. On account of the demands of the army and navy the school of medicine of the University of North Dakota has become a part of the specialized training program. It is in operation for forty-eight weeks of the calendar year. The forty-eight weeks are divided into four terms of twelve weeks each; three of these terms, thirty-six weeks, constituting an academic year. An entering class starts approximately every nine months, and the work of two academic years is accomplished in one-and-one-half calendar years. An academic year began with the summer term of 1943 and closed

with the winter term, March 25, 1944. A new academic year started at once and should close in December, 1944. Medical entrance and the professional training are tied up with the army and the navy pre-medical training programs. Until this time, the school has been pretty well able to select its own students, but from now on, so long as the present program continues, the quotas for army and navy will probably be assigned by the respective services.

In the two classes of the academic year starting in the summer of 1943 and recently closing, forty-three were accepted at once in the ASTP, the Army Specialized Training Program, five were accepted in the Navy V-12 program and nine were civilians. In the academic year that has just got under way, out of a total of fifty-two students in the two classes, thirty-three are in the ASTP, eight are in the Navy V-12 and eleven are civilians. Some of the latter group are expected to be accepted into one or the other of the specialized training programs.

Otherwise the plan and organization of the school remain as before. The school has been fortunate in being able to retain its faculty. Of the twenty-seven students finishing the curriculum offered at the university in March, 1944, all have been accepted for junior standing in other and complete medical schools.

H. E. FRENCH, M.D., Chairman

Necrology and Medical History

Time is ever silently turning its pages and thus in annual session it seems fitting that we pause for a space and decorously pay our tribute of memory to those of our members who, since last we met, have ceased from their labors and at the same time extend to those who mourn their passing our mood of sympathy and comfort in this, the hour of their deepest sorrow.

Especially do we note the passing of many of our pioneers in medicine. They were in the field when the profession was young in this territory; they were courageous and always alert to the advances of their profession. Many were taken as a result of overwork in the present emergency. We regret their deaths, we glory in their lives of service.

GULICK O BUNDY

Dr. Gulick O. Bundy, of Barton, North Dakota, died May 1, 1943, at a Rugby hospital. Dr. Bundy was a native of Spring Grove, Minnesota, but a resident of North Dakota for forty-three years. The last thirty years were spent in the field of his medical activity at Barton.

Dr. Bundy was graduated, class of 1904, from the College of Physicians and Surgeons, at St. Louis, Mo. He was licensed July 15, 1909.

CYNTHIA ESTELLE PINGREE MACNIIDER

Dr. Cynthia Estelle Pingree Macnider, 85, died at a Jamestown hospital May 4, 1943, after an illness of a year's duration. She was a native of Maine but became a pioneer resident, having come to Dakota in 1888 shortly after her graduation in medicine. Excepting for one year spent in Mississippi and two years in California, Dr. Macnider practiced continuously in the state and was a resident successively at Fort Yates, Emmonsburg, Linton, Spiritwood, Bismarck and Jamestown.

She was placed at rest in the Fairview cemetery at Bismarck

WALTER BYRON SCOTT

Dr. Walter Byron Scott, 70, of Ray, died at his home May 12, 1943. He had been in poor health for a long time.

He was graduated in medicine from Queens University in 1897 and was licensed the same year.

Dr. Scott knew much of pioneer medicine, coming to the state some forty-six years ago from Canadas. He was in practice at Crystal, before locating at Ray. Early trips through the country-side were made, as necessitated, with skis and the saddlehorse. His first appendectomy was performed by candle-light in a homesteader's sod shanty.

Dr. Scott held degrees in both pharmacy and medicine. He was a previous mayor of Ray.

Dr. Scott leaves a son, Walter K. Scott of Seattle, and a daughter, Mary Genevieve, who also lives in the west.

OLAF HARALDSON

Dr. Olaf Haraldson, 58, in practice for the past twenty years at Munor, passed away June 6, 1943, at the home of his brother Haljord at Noethwood.

Dr. Haraldson was director of the Minot-Ward county public health unit at the time of his death and had practiced previously at Watertown, South Dakota, and at Northwood. He was a graduate of the University of North Dakota and Rush medical college in 1912. He registered July 4, 1913.

Dr. Haraldson was born at Northwood, and was a member of a group of Minot Shrine club members enroute to Grand Forks when he was stricken. Mrs. Haraldson, three brothers and two sisters are the survivors.

WILLIAM CROZIER FAWCETT

Dr. William Crozier Fawcett, 65, died June 21, 1943, at his home in Starkweather. He had been ill for a number of months.

Dr. Fawcett was born in London, Ontario, and was graduated from the University of Western Canada, in that city in 1901. He came to North Dakota soon following his graduation and located at Drayton, being associated with Dr. H. M. Waldren. He was licensed October 15, 1901.

October 3, 1902, Dr. Fawcett arrived at Starkweather, on the first train to serve that territory. There he remained in professional service for the rest of his allotted time.

Dr. Fawcett was a charter member of the Devils Lake medical society and was president of the state medical association, in 1924-25. He was a member of the state medical examining board and president of that body for five years.

Dr. Fawcett was deeply interested in professional, religious, and civic affairs, making splendid use of his talents in the betterment of mankind.

Survivors are Mrs. Fawcett and four sons, born to this union. All of these men became doctors. John C. and Newton W. are located in Devils Lake. Donald W. and Robert M. are in the service of their country, being members of the Medical Corps, A.U.S.

JOSEPH P. LA POINTE

Dr. Joseph P. LaPointe, 52, Harvey, North Dakota, died June 25, 1943, at his home city. Dr. LaPointe had been in practice at Harvey for thirteen years.

He was a native of Montreal, Quebec. He was a graduate of Laval University, Quebec, 1917, and licensed in North Dakota in January, 1929.

W. D. WAGAR

Dr. W. D. Wagar, 68, after an illness of several months, passed away at Michigan, where he had practiced for over forty years. His death occurred on July 25, 1943. He was born in Ontario, on November 8, 1875, and came to Dakota three years later.

Dr. Wagar attended the University of North Dakota and graduated in medicine at Minnesota, class of 1898. He was licensed July 14th of the same year. He first practiced at Crary before locating at Michigan in 1901.

Dr. Wagar leaves his wife, a daughter, a brother and two sisters.

CAMPBELL SANSING

Dr. Campbell Sansing, 70, formerly on the staff of the veterans hospital at Fargo, died April 4, 1943, at his home in Blossom, Texas. He had also practiced at the government hospital at Muskogee, Oklahoma, and at Courtenay and Valley City, both in North Dakota. He was a graduate of Tulane university, class of 1904.

Dr. Sansing had retired but a few months before his demise.

ZELLA WHITE STEWART

Dr. Zella White Stewart was born in New Brunswick, Canada, January 9, 1878, and died in Iowa City, Iowa, August 4, 1943.

She attended Allegheny college, Meadville, Pennsylvania, and graduated from Cornell medical college in 1904. In the same year she was married to Prof. G. W. Stewart of the University of North Dakota faculty and came to Grand Forks to reside and practice her profession, which she did from 1906 to 1911. In the latter year husband and wife moved to Iowa City where she practiced until 1938.

Dr. Stewart was a lady of culture and refinement and was held in high regard socially and professionally. She was a de-

voted student of medicine and in the later years of her life she specialized in allergy and was a pioneer in that department of medicine. She was a member of the American Association for the study of Allergy, and was regarded as an authority on the subject.

WILFRED F. LOWE

Dr. Wilfred F. Lowe, 40, former resident of Grand Forks, died September 11, 1943, at Jackson, California, following a heart attack. He had been in practice at Jackson for fifteen years.

Dr. Lowe was the son of the late Mr. and Mrs. J. W. Lowe of Grand Forks. After graduation from the University of North Dakota he completed his medical education at Rush medical school.

L. E. DEMKE

Dr. L. E. Demke, 46, senior surgeon of the U. S. public health service at Belcourt, died at Leland, Illinois, during the late summer. He was in the Indian service. Dr. Demke had been in ill health and was on sick leave from the service, accompanied by his wife and daughter, and at the home of friends, when he was stricken. He was a graduate of Loyola university, Chicago, 1926. He served during World War I.

ERNEST G. SASSE

Dr. Ernest G. Sasse, 73, died September 15, 1943, at his home in Lidgewood. He was a native of Minnesota and graduated from Hamline university medical school in St. Paul, and had taken graduate work at the universities of Vienna and Berlin. He graduated in 1899 and was licensed July 14, 1904. With the exception of six years spent in Bridger and Bear Creek, Montana, Dr. Sasse had been in practice at Lidgewood since 1904. He purchased the city hospital in 1913 and continued to operate it until his death. He held membership in many religious, fraternal and medical bodies.

Dr. Sasse leaves his wife and three sons, Maj. Bruce Sasse in the Panama Canal Zone, Douglas of Willmar, Minnesota, and Victor of Jefferson Barracks, Missouri.

EINER LOHRBAUER

Dr. Einer Lohrbauer, 78, died at a Grand Forks hospital, October 29, 1943, after 42 years of practice in Lakota. He came to the United States from Norway at the age of 19. He was a graduate of the University of Oslo, and in medicine, of Minnesota in 1901. Dr. Lohrbauer registered in North Dakota October 23, 1902. He operated a drug store in Grand Forks before locating at Lakota. He was mayor of that city for twelve years and had served in the legislature from Nelson county. He was county health officer for twenty-five years.

Surviving are his wife, one son, Dr. Leif T. Lohrbauer, and a daughter, Mrs. Louis Fallon of Grand Forks.

JOHN B. JAMES

Dr. John B. James, 56, died November 8, 1943, at his home in Page. Dr. James was graduated from Northwestern university, class of 1911, and interned at the county hospital in Milwaukee. He was licensed January 10, 1913. He located in Page in 1913, taking over the practice of the late Dr. Wm. Scanlan.

Dr. James never denied needed services to anyone. He was a lover of nature, flowers, and the wild life. He appreciated good music and good books. He was an ardent sportsman. He was the recipient in 1936 of North Dakota's safest driver's award.

Dr. James gave much of his time to civic affairs, holding membership in the Methodist church, the Masonic and Workman lodges, on the village board for many years and was a past president of the Community club.

He leaves a son, Capt. John Basil James, M.C., A.U.S., on duty in North Carolina, a daughter Annabel, and two sisters, besides Mrs. James, formerly Miss Gena Johnson, Cass county school nurse.

H. J. SKARSHAUG

Dr. H. J. Skarshaug, 45, of Washburn, North Dakota, died November 30, 1943, as a result of a hunting accident.

Dr. Skarshaug was graduated from the University of Iowa, in 1926. He served his internship at the California Lutheran

hospital, Los Angeles, and practiced for seven years atDecorah, Iowa, before locating in Fargo. He was health officer for the city of Fargo from 1935 to 1939. He had been in practice in Washburn for four years, when the fatal accident occurred.

Dr. Skarshaug leaves his wife and three children.

GUSTAV E. STROMBERG

Dr. Gustav E. Stromberg, 59, died December 21, 1943, at his home in Langdon. He was a native of Sweden, coming to Chicago with his parents when three years of age. After his graduation from the University of Illinois he came in 1911 to Loma where he practiced for two years. He was licensed January 12, 1911. He also was located for short periods of time at Dickinson and Taylor in western North Dakota. From February 1914 to the time of his death he was a practitioner at Langdon.

Dr. Stromberg was a pioneer in the use of the snow-plane and the airplane in the practice of his profession. He maintained a private hospital until a few years ago when, because of ill health, a lessening of his activity was necessitated.

Dr. Stromberg was an outstanding citizen of Cavalier county, health officer of the county and the city of Langdon for many years. He was a splendid public-spirited civic worker and kept up these contacts even in declining health.

Dr. Stromberg is survived by Mrs. Stromberg, two daughters and a son, Dr. Murry G. Stromberg, who is a first lieutenant, M.C., A.U.S., stationed at Fort Ord, California. Another survivor is Dr. Gordon Pettit, an officer in the dental corps, U. S. Navy.

WM. L. T. GOODISON

Dr. Wm. L. T. Goodison, 70, of Latimore, died in a Grand Forks hospital January 14, 1944. He had spent 50 years in Latimore and was widely known, both as physician and lawyer. For many years he practiced medicine, later giving his time largely to law. He was at one time assistant attorney general of North Dakota.

Dr. Goodison received his medical education at Hamline university and Jefferson medical college, class of 1909. He was licensed October 14, 1909. He never married and there are no immediate survivors. He was a native of Newfoundland.

JAMES GRASSICK

For many years at the holiday season the numerous friends of Dr. James Grassick, of Grand Forks, North Dakota, received greetings in the form of a pamphlet which he himself prepared. This year, only shortly after this holiday message arrived, and while it was still being read, Dr. Grassick died, on December 19, 1943. His last message was entitled "Out of the Mists," in which he said: "I was born in a secluded glen in the highlands of Scotland, hemmed in by the everlasting hills where mists and shadows were much in evidence. To be out of the mists, meant not only dry footing, but a clearer view of the surrounding landscape, of the heathered hillsides, and gowan meadows and other objects of beauty that were within range."

Born in Aberdeenshire, on June 29, 1850, he soon moved to Ontario, Canada, with his parents. After completing his public school work, he became a teacher and devoted his spare time to the study of medicine in the office of an Ontario physician. When he was thirty-five years old, he graduated from the Rush medical college in Chicago. He then attended lectures and clinics in the General hospital and in the Burnsides lying-in hospital in Toronto. In the fall of 1888 he went to Buxton, North Dakota, where he was engaged in the practice of medicine most of the time until 1905, when he moved to Grand Forks. On numerous occasions Dr. Grassick did graduate work. In fact, after such work in 1888 the University of Michigan granted him the degree of Doctor of Medicine. In 1904 he traveled through the countries bordering on the Mediterranean, and through Switzerland, Germany, France, Norway, and Great Britain.

In addition to the practice of medicine of that day, Dr. Grassick had an unusual interest in public health, so much so, in fact, that in 1907 he was appointed state superintendent of public health and held that position for six years.

In 1909 he was elected president of the North Dakota Anti-tuberculosis Association and was annually re-elected to this

office for more than twenty years. He edited the *Pennant*, a monthly publication devoted to the interest of good health, with special emphasis on the cause, prevention, and cure of tuberculosis. This periodical had a circulation of more than 4,000 copies per month. He was a member of the board which selected the site for the North Dakota state sanatorium, and his interest in that institution continued throughout the remainder of his life. In 1917 Dr. Grassick was appointed University of North Dakota physician, and he conducted what was, in reality, a student health service, having a special dispensary for students. Indeed, he watched over the health of the entire campus and did much to control and prevent epidemics.

In 1923, because of their great admiration and respect for him, and as a recognition of his outstanding contribution to medicine, the North Dakota state medical association conferred upon Dr. Grassick its highest honor by electing him to the presidency. Although the official records of the North Dakota state medical association were destroyed by fire in 1911, Dr. Grassick set to work to record the history of the association, which was published in book form in 1926. His chapters on such subjects as the Pioneer Physician, "Doctors" Lewis and Clark, and the Irregulars, are classics. This volume can be read with profit by physicians everywhere.

The concluding sentence of Dr. Grassick's 1943 holiday message is, "Enough, if we are permitted to peer through the mist, catch a glimpse of the stars beyond and point the upward way." This he did all of his life. While helping others to live long, happily and successfully, he himself was an outstanding example, having attained the age of ninety-three years.

R. C. THOMPSON

Dr. R. C. Thompson, 67, of Wilton, passed away February 8, 1944, at a Bismarck hospital. For several weeks he had not been well but because of the need for medical services he was active until a week before his death.

Dr. Thompson was a native of Listowel, Ontario, and was a graduate of the medical school of Trinity college, Toronto, and soon thereafter came in 1901 to Wilton to practice his profession. This was the scene of his activity with the exception of one summer spent in Canada. He was licensed January 16, 1902. His kindness and thoughtfulness and the willingness to answer all demands on his time and talents, endeared him to all. Dr. Thompson was a member of the Presbyterian church, of the Bismarck Masonic Lodge, Knights Templar and the El Zagal Temple of Shriners at Fargo.

Surviving are his wife, two sons, Walter M. of the navy, and John Sterling, flying instructor of the army, one brother and three sisters.

DANIEL H. BELL

Dr. Daniel H. Bell, 70, an early day practitioner of Kenmare, died December 23, 1943, at Tacoma, Washington, where he had been in special practice for a quarter of a century. After graduation from the university medical school of Kansas City, Mo., he located in Kenmare, there to practice for a period of ten years before removal to the west.

Survivors are his wife, a brother and a sister.

JAMES NOONAN

Dr. James Noonan, 25, of Valley City, died February 9, 1944, at Camp Barkerly, Texas. His death was caused by meningitis, after but two days illness. He attended the University of North Dakota and graduated in medicine from McGill university, Montreal, in January, 1943. He interned at Providence hospital, Seattle, Washington. He enlisted in the Medical Corps, A.U.S., was commissioned a lieutenant, and ordered to camp, on January 6, 1944.

Survivors are his wife, his parents and two brothers, Major T. Noonan and Lieut. (j.g.) Lawrence M. Noonan.

Dr. Noonan had prepared himself well for service in behalf of his country but was taken before this opportunity could be realized.

WILLIAM CAMPBELL

Dr. Wm. Campbell, 46, died February 21, 1944, at his home in Valley City. He had been in ill health for a year but had continued in practice until six months before his death. Dr. Campbell was born in Glengarry county, Ontario, February 15,

1898, and before graduation from high school enlisted in the Canadian forces in World War I. He served overseas and on his return finished his preliminary work and studied medicine at the University of Manitoba from which he was graduated in 1927. After serving his internship he located at Buffalo, North Dakota, but in 1928 moved to Valley City where he continued to practice until called from his earthly activity. He was a diplomate of the national board.

Dr. Campbell was especially interested in community health and was president of the county chapter, American Red Cross. He was a member of the Masonic and Knights of Pythias lodges, and Kiwanis. Dr. Campbell was highly esteemed by all, as friend, citizen and physician.

Survivors are his wife, a son, Ian, a sister and two brothers.

H. M. WALDREN

Dr. H. M. Waldren, Sr., 69, of Drayton, died February 22, 1944, at the University hospitals in Minneapolis. He had been in active practice until a few weeks before his death, though not in the best of health for a number of years.

Dr. Waldren was born in Kingston, Ontario, and graduated in medicine from Queen's University in 1898. He was married soon after and moved to Winnipeg where he lived for a year before locating in Drayton. At Drayton he lived and practiced to the conclusion of his career. He was licensed July 13, 1899. Dr. Waldren established and managed the Drayton hospital for thirty-five years.

He was a member of the American College of Surgeons, president of the state medical association in 1931, and for many years a member of the state medical examining board. Dr. Waldren served his city as mayor on two occasions, was an energetic supporter of the good roads program, a civic leader, a sportsman, and in 1932 was illustrious potente of Kem Temple, Nobles of the Mystic Shrine of Grand Forks. He was a member of the Masonic blue lodge of Drayton, the Scottish Rite and St. Omer commandery of Grafton and a member of the Royal Order of Jesters of Grand Forks. He was a member of the Odd Fellows and Woodman lodges of Drayton.

Survivors are his wife, two sons, Dr. George Waldren, of Cavalier, and Dr. H. M. Waldren, Jr., with whom he was associated in practice in Drayton, and a daughter, Mrs. Henry Heitman of Athens, Ohio.

CLARENCE S. PUTNAM

Dr. Clarence S. Putnam, 84, of Fargo, died February 25, 1944. He was a graduate of Hahnemann medical college, Chicago, class of 1897, and registered in North Dakota the same year.

Dr. Putnam having special talent along musical lines gave up the practice of medicine and became bandmaster of the N. D. A. C. and continued in this work until the time of his death.

Survivors are Mrs. Putnam and three sons, one of whom is in England with the air corps.

HENRY B. BEESON

Dr. Henry B. Beeson, 62, died late in March, 1944, at his home in Racine, Wisconsin.

He graduated from Hahnemann medical college, Chicago, class of 1912, and was licensed in North Dakota July 3, 1919. Dr. Beeson confined his work to the specialty—eye, ear, nose and throat, and was a member of a Grand Forks clinic, where he practiced.

He was a member and past president of the North Dakota Academy of Ophthalmology and Otolaryngology. He removed from North Dakota in 1930.

Survivors are Mrs. Beeson and three sons.

R. M. COX

Dr. R. M. Cox, 68, passed away at his home in Edmore, March 27, 1944. He had been in ill health for a long time. Dr. Cox was born September 15, 1875, in Lonford county, Ireland, and came to the United States when twelve years of age.

He held degrees in both osteopathy and medicine, graduating in the latter from Hamline University, and was licensed in North Dakota, July 13, 1905. Dr. Cox came to Edmore in September, 1905, and continued to practice his profession at this place until the time of his death. Burial took place at Graceville, Minn.

Survivors are his wife, two children, Capt. William L. Cox of Texarkana, Tex., and Mrs. Erling Berg of Mayville; three brothers, Jack and William Cox of Graceville, and Brig. Gen. Richard Cox of St. Petersburg, Fla., and two sisters, Mrs. Hubert Burns, Minneapolis, and Mrs. Joe Coyne of Graceville. Dr. Cox was a member of the Edmore Masonic lodge and the Kem Temple of Shriner's of Grand Forks.

GEORGE M. WILLIAMSON, M.D., Chairman.
F. L. WICKS, M.D., Collaborator.

Public Policy and Legislation

The committee on Public Policy and Legislation has not been called together this year as there has been nothing of special importance to consider.

As a member of the Council, we met with the officers of the state medical association last fall in Fargo, to consider the program submitted by the Division of Maternal and Child Hygiene as applied to maternal and infant care of soldiers' dependents. After a thorough discussion of the bill as explained by Dr. Hill, and others, the proposal was not accepted by the state medical association. The association, in turn, made a modified proposal which was not accepted by the bureau. I understand that in the meantime a modified plan has been accepted, but our committee has had nothing to do with the matter since the original consideration of the subject.

There has been nothing of a legislative nature to consider this year as there has been no legislation.

We feel that there should be a general discussion before the state meeting regarding the status of a refugee physician. This is a matter with which every physician in the state should be familiar. It presents a serious problem which must be solved definitely in the near future.

ARCHIE D. McCANNEL, M.D., Chairman.

Public Health

The committee on Public Health was not asked to meet during the past year by the chairman due to the difficulty experienced by other chairmen to obtain good representation because of the inability of physicians to leave their practice.

In view of the endorsement of full-time health units by the American Medical Association, your chairman respectfully recommends that the House of Delegates reconsider its action at the Fifty-sixth Annual Session. The recommendation of the committee on Public Health was "That the House of Delegates give careful consideration to the provisions of Senate Bill No. 77 (Chapter 220 S. L. 1943), which is permissive legislation for providing full-time health districts, and request the members of the North Dakota State Medical Association to cooperate in promoting full-time public health units."

Your chairman, as representative of the North Dakota state department of health, wishes to express deepest appreciation to the physicians of North Dakota for their splendid cooperation in all health matters, and for their patience and understanding in these times of depleted personnel, when mistakes and delays in service are inevitable.

F. J. HILL, M.D., Chairman.

Tuberculosis*

The following is a report of the meeting of the committee held during the past year.

Members present were: C. V. Bateman, V. J. LaRose, W. L. Walbank, and J. O. Arson.

Miss Helen Katen was present, representing the North Dakota Anti-Tuberculosis Association. She reported that the North Dakota association has made available an intercounty nurse whose function it will be to cooperate with the local health officers in any work that she will be able to perform. The follow-up of tuberculous cases will be part of her duties and her services are available through Miss LaCroix who has her headquarters at the state health department. The value of this type of service can be appreciated when one knows the situation as it arose at Powers Lake where a large number of tuberculous contacts developed active tuberculosis. The Powers Lake situation was discussed at considerable length by the committee and it was its opinion that the state health department should take the initiative in clearing up such situations as that which occurred at Powers Lake.

The question of utilizing microfilm in investigating tuberculosis met with favorable response from the committee. The committee was in favor of some such endeavor carried out in cooperation with the local physicians.

Any definite action on this matter was postponed until a later and more opportune time. The committee realizes there is some opposition in the profession to such a program and thinks it advisable that a campaign of education, both of the public and the profession, regarding what can be accomplished by small films, be carried out.

RECOMMENDATIONS

The committee wishes to stress the following ideals in our anti-tuberculosis campaign in North Dakota.

1. We advise stress being made on the examination and search for contacts of active cases.

2. We do not recommend check of students in school below high school age.

3. We highly recommend a symposium on tuberculosis in the local medical societies.

4. We recommend more education for the laity.

5. We recommend that all teachers be supplied with satisfactory pamphlets on tuberculosis which they may use as an accessory textbook.

6. The committee also recommended the use of the patch test routinely on all hospital admissions.

Dr. Walbank stated that on Mondays and Thursdays the staff of the sanitarium presents a clinic on pneumothorax to which all members of the profession who are interested are invited.

At the time of our meeting North Dakota was one of the three states which have enough beds in the sanitarium to take care of all tuberculous cases requiring treatment in a sanitarium. However, recently the situation in the sanitarium has been changed because of the impossibility to get adequate help, and thereby the function of the sanitarium has been greatly curtailed. Dr. Walbank has requested that in all cases advanced notice be sent to him before the patients are sent to the sanitarium. It is apparent under these handicaps that cases will not be kept as long as might be desirable and many cases will have to be discharged to home care under the local physician's supervision. The profession is asked to cooperate in this regard with Dr. Walbank and the sanitarium.

J. O. ANTHONY, M.D., Chairman.

*This report was not received in time to be considered by the House of Delegates.

Pneumonia Control

The Committee on Pneumonia Control met with the members of the state department of health in the capitol building at Bismarck on February 7, 1944.

In 1943 there were 2468 cases of pneumonia reported to the department of health as compared to 2944 cases of pneumonia reported in 1942. Of these 2468 cases, 525 were treated in the control group and 1943 patients were treated in the non-control group. Two hundred seventy-four chest films were taken on 253 individuals. The total cost of the program was \$3,890.57, divided as follows: Drugs, \$1,621.57; x-rays, \$1,189.00; typing, \$1,080.00. The average cost per patient of treatment in the control group was \$7.41, as compared with \$5.60 in 1942.

The committee makes the following recommendations:

1. The state department of health should continue to supply antipneumococcal serum to physicians since druggists no longer stock it.

2. Only types 1, 2 and 3 antipneumococcal serum shall be available at all typing stations. All other types of serum are to be procurable at the public health laboratories located at Bismarck and Grand Forks.

3. A maximum fee of \$15 be allowed for chest x-rays on a single pneumonia patient, which means that a physician would be paid for a maximum of three films.

4. Sulfaferazine should be added to the list of drugs supplied by the state department of health.

5. The pneumonia technicians conference should be continued as in the past.

6. Local typing station technicians should be requested to speed up the reporting of sputum typing to physicians, and should report negative results just as promptly as positive results, directly to physicians.

PAUL H. ROWE, M.D., Chairman.
Cancer

The Committee on Cancer has not had a meeting during the past year so this report represents the views of its chairman only.

Cancer continues to be a leading health problem. It is second only to heart disease as a cause of death in North Dakota. About 163,000 persons died from cancer in the United States in 1942, of which North Dakota contributed 620.

Early cancer is curable—if this there is no doubt. The problem, therefore, is to recognize and treat cancer in the early stages of the disease. Education of the public and the physician is the most potent weapon we have to defeat the menace of cancer. The American Society for the Control of Cancer and its subsidiary, the women's field army, is expanding its educational program, stressing that cancer is curable if treated early and what the danger signals are. The Women's Field Army in North Dakota, under the able leadership of Mrs. J. W. Snyder, state commander, is organized in almost every county and is doing a splendid job. The cooperation of the individual physicians in the state has not always been what it might be. Some physicians have viewed with skepticism the program of a lay organization dedicated to the effective control of cancer. They would do well to study the objectives of the women's field army and to offer assistance to its county workers. They will find that the educational material distributed by this organization emphasizes only accepted facts and urges people to consult their family physician whenever the danger signals, that may mean cancer, appear.

The responsibility of the physician in the control of cancer does not end with the support which he may give to the women's field army. He must, in addition, become "cancer minded," so that, when a patient comes to him with signs of cancer, he will do a thorough physical examination and will demand that the patient subject himself to special diagnostic procedures in order that the early case may be diagnosed. This is particularly true of biopsies of the cervix and endometrium, and gastrointestinal x-ray studies. If cancer is to be controlled, physicians cannot resort to "curbstone consultations" or to the pernicious practice of telling a lay person, who comes to him because of some danger signal which he has been told about or reads in the women's field army literature, that he is merely worried and should forget about it.

The component medical societies are again urged to devote at least one program a year to the early diagnosis and treatment of cancer.

L. W. LARSON, M.D., Chairman

Fractures

No meeting of the Committee on Fractures was held during the year of 1943. Consequently, there is no additional data to report.

There were several communications from Dr. Charles Scudder of Boston requesting a continuation of the fracture work in the various hospitals as previously outlined.

R. H. WALDSCHMIDT, M.D., Chairman

Crippled Children

The Crippled Children's Bureau of the state has apparently been functioning satisfactorily as there have been no problems arising necessitating the meeting of this committee. If there have been any objections or complaints on the part of any practitioners of the state, this committee would be glad to know of them.

A. R. SORENSEN, M.D., Chairman

Medical Economics

Prior to our last annual meeting we had discussed with Mr. E. A. Willson, executive secretary of the North Dakota public welfare board, the question of a revision of the welfare board fee schedules. These discussions were continued and a new fee schedule drawn up, a copy of which has been mailed out

to all doctors of medicine in the state. In preparing this schedule we desired to achieve two objectives:

1. A more realistic rate of payment.
2. To bring together into one uniform, comprehensive, over-all schedule the various activities and programs of the public welfare board relating to every kind of medical care.

It is our belief that these objectives have been accomplished and we would like to draw the attention of the House of Delegates to the following facts:

1. Use of this schedule is mandatory in all cases where the entire bill is being paid by the state public welfare board.

2. The various county welfare boards are advised by the state welfare board to accept this schedule but they are not necessarily obligated to do so.

Accordingly we would like to suggest that each delegate see that his district medical society make every endeavor to have this schedule adopted in the various counties.

I would like to express the appreciation of this committee for the splendid cooperation we have had from Mr. E. A. Willson, executive secretary of the state public welfare board. Both in the preparation of this schedule and in our many dealings with him over the past years, we always have found him to be fair, honest and courteous.

At the present time the medical profession is greatly concerned with several aspects of what, after all, are the same problem. In essence this problem can be stated as to how the method of medical practice is going to be changed or modified in the coming years. There is a desire on the part of the public to escape, prepay, budget or in some manner provide for medical care on other than a fee for service basis. Such proposed changes are of two main types:

1. Government control.

2. Prepayment plans as sponsored and controlled by: (a) medical groups, (b) in connection with hospital insurance, (c) by private individuals, lay or medical, and by industrial organizations.

Government control: You all have heard of the Wagner-Murray-Dingell bill which proposes a system of state medicine under the direct control of the surgeon general of the U. S. public health service. From all the information available at this time it can be stated that this bill will not be passed in its present form at this session of congress and it is unlikely that any similar bill will be passed. In connection with this problem of government control I would draw your attention to the fact that a comprehensive scheme of national health insurance has been introduced in the Canadian parliament, will pass, and probably will be operating within a year. This with the tacit consent of, or at least without active opposition from, the Canadian Medical Association.

Prepayment plans: The medically controlled prepayment plans in some instances have had rather hard going and, while not successful in every respect, show promise for the future. The most important plans are those of California and Michigan. It does not seem to us that the time is ripe for us in North Dakota to sponsor a comprehensive prepayment plan.

(a) Hospital prepayment plans have shown a tendency to add some medical and surgical benefits to their programs. Some members of the profession deprecate this practice and others consider it to be good.

(b) Various industrialists, notably Henry Kaiser, have introduced prepayment medical care for their own workers. This, after all, is only an extension of contract practice and hardly can be considered a successful innovation because the care is given to employees only and does not include the families. It is a well known fact that the rate of illness is lower among active employed individuals. Our problem then is how best to guide and control the changes which are probably inevitable. To do this we must have good leadership. Discussion of this problem covers a great deal of ground and much of it concerns how well or poorly our organization, the A.M.A., has done its job.

Criticism of the A.M.A. within the profession mainly concerns itself with the manner in which our interests are presented to the government in Washington. Many people within

and without the profession believe that our interests would be better served if we maintained an office in Washington which would function actively to give congressmen information as to our attitude on impending legislation. Such an office would be a two-way affair, on the one hand present our views to congressmen, senators and government bureaus and on the other informing the profession as to legislative trends and enlisting their support as needed. Experienced legislators unanimously agree that such an office is vital to our interests.

You may recall that a year ago we instructed our A.M.A. delegate to join with other delegates in urging the establishment of such an office. He will report to you that this failed of approval in the A.M.A. House of Delegates. Instead, a new Council on Medical Service and Public Relations was set up. It is reported that this council contemplates some sort of a Washington office, but for one reason or another the higher officers of the A.M.A. seem to be opposed to such a move and unless their attitude changes it does not seem likely that this committee will represent us very effectively in Washington.

There are now three other organizations entering the field of public relations for the medical profession. They are:

1. The National Physicians Committee. This committee has done a great deal of work in the public relations field in the way of good newspaper publicity and has collected much data. Their recent survey of the general public's desires in the matter of medical care is interesting and instructive. It is probable that they were partly instrumental in the recent action of the American Bar Association in condemning the Wagner-Murray-Dingell Bill. So far as we are aware they have not carried on any direct activity in the legislative field.

2. The Western Public Health League. This organization originated in California where they have had much successful experience in combating pernicious legislation. Several of the western states have joined with the California Public Health League to form the Western Public Health League. On March 25th they opened an office in Washington headed by their public relations expert, a newspaperman, for the purpose of representing the medical profession of the western states.

3. The Association of American Physicians and Surgeons, originating in the Lake County Medical Society, Gary, Indiana. They propose to enroll as many medical men as possible and to carry on public relations and legislative activities. At the present time the outlook for this organization is uncertain.

To most of us it would seem desirable to have all matters pertaining to legislation and public relations carried on within the general framework of the A.M.A. organization. After all, this is our parent organization and it is up to us to try to influence its policy in the usual democratic manner. At the meeting of the National Conference on Medical Service, February 13, 1944, a resolution was passed urging that the council on Medical Service and Public Relations establish an effective Washington office. There was considerable discussion to the effect that if the council did not do so the support of the conference be extended to either the Western Public Health League or the Lake County people. The general trend probably favored the Western Public Health League because it is a well knit organization with much experience in this type of work.

In concluding this report we would recommend that our delegate to the A.M.A. be instructed to use his influence to further the establishment of an effective Washington office which would adequately serve the interests of the public and ourselves.

W. A. WRIGHT, M.D., Chairman.

Maternal and Child Welfare

Your Committee on Maternal and Child Welfare has not found it possible to hold a formal meeting since the, now historic, one of May, 1943, in which it went on record as opposing the regimentation of the medical profession as contained in the E.M.I.C. program of the Children's Bureau. It held then and it holds now to the belief that the interposing of a third party, in this instance the North Dakota State Department of Health, jeopardizes the patient-physician relationship, and that, economically, it represents the entering wedge for a plan of socialization of medical practice.

Leaving the participation or non-participation of the individual physician in North Dakota in the E.M.I.C. program, which is now in effect in North Dakota, for that physician to decide for himself, your committee has concerned itself, by questionnaire, with the very realistic causes for a rising maternal death rate since 1940. We recommend the careful study of the graphic chart, prepared by the North Dakota state department of health and covering the period of nine years which represent the present life-span of your committee on maternal and child welfare. The three major causes of maternal deaths are re-emphasized because of the tremendous importance of infection, toxemia and hemorrhage in causing maternal deaths. It will be noted that, while all three showed a rise between 1940 and 1942, hemorrhage and toxemia continued that rise in 1943 and only infection showed a decline.

Admitting that the war has placed an added burden upon the too few physicians remaining in civilian practice in North Dakota and that there has been an apparent increase in the fulminating type of toxemia of late pregnancy in this younger age group, i. e., hypertensive toxemia, Group B of the American Committee classification (pre-eclampsia and eclampsia), your committee feels that the following specific recommendations will reduce morbidity and mortality from this group:

1. The insistence upon adequate prepurum care. Visits to the physician every month until the seventh month, every two weeks from the seventh to ninth month, and every week thereafter until delivery. Weight determination, blood pressure readings and urinalysis to be made at every examination. When the blood pressure is 140/90 or over, bedrest and more frequent examinations should be insisted upon.

2. Hospitalization of all cases of toxemia where the symptoms have increased in spite of close supervision and ambulatory regime.

3. The induction of labor by the gentlest possible means when the maximum improvement has been attained and the avoidance of accouchement force to effect delivery. Cesarean section should be limited to strict obstetric indications in toxemia and should only be performed after competent consultation has been obtained.

4. Hypertonic solutions of dextrose in sterile distilled water should be instantly available for intravenous use and plasma or a 6 per cent solution of gum acacia should be as readily accessible for the treatment of shock.

5. Save blood

To reduce the deaths from obstetric hemorrhage, your committee recommends:

1. That all cases of placenta previa be hospitalized

2. That all maternity homes and hospitals admitting maternity patients keep a blood substitute on hand with intravenous equipment sterile and in good working order, ready for immediate use. We recommend human plasma as the most desirable preparation for emergency use but, where expense or lack of availability make plasma difficult to obtain, we would call attention to the relative cheapness and effectiveness of a 6 per cent solution of gum acacia which is marketed in sterile containers for intravenous use and which is relatively stable. Chief objection to gum acacia is its tendency to form more or less permanent deposits in the liver.

3. That blood counts and hemoglobin determinations be made with sufficient frequency on cases of obstetric hemorrhage to keep the physician informed of the blood reserve of his patient.

4. That operative obstetrics be reduced to a minimum and that all major operative obstetric procedures be preceded by consultation whenever possible.

5. The committee recommends routine use of vitamin K to obstetric patients in labor.

There has been some lessening of neonatal mortality in North Dakota. The individual analysis of infant deaths by questionnaire, which was recommended to the Maternal and Child Hygiene division is beginning to provide some interesting data. Because of limited personnel it has not been possible so far to follow this study as fully as would have been desirable but we believe it should be continued. Prematurity in North Dakota, as else-

where, continues to be a major problem. Birth shock, birth trauma and hemorrhagic disease of the newborn continue to exact their toll of infant lives. While the incidence of syphilis is low in North Dakota, it is doubly important to keep it low or lower it still further by insisting upon routine Kahn and Kolmer tests on the pregnant woman.

The efficiency and low-toxicity of vitamin K preparations have been determined with sufficient accuracy to warrant the recommendation that they be given routinely to the obstetric patient in labor as prophylaxis against hemorrhagic disease of the newborn.

The recent appearance of diphtheria in the state in several localities and with some fatalities again calls attention to the need for an effective and persistent campaign of immunization against communicable disease in infancy. The private physician can do much to protect his child patients by insisting upon immunization against diphtheria, smallpox and pertussis during the first year of life.

JOHN H. MOORE, M.D., Chairman

Venereal Diseases

Due to travel restrictions and lack of important business to be transacted, no meeting of the committee was held this year. However, the following is a brief report of the venereal situation during the past year.

During the year 1943, physicians reported 311 cases of syphilis to the state health department compared to an average of 375 during the preceding five years. Physicians also reported 263 gonococcal cases compared to a five year average of 405. The decrease in the total number of venereal diseases may be accounted for by the decrease in our population, particularly of youth. The splendid cooperation between the armed forces, the medical profession and state health department in the examination and treatment of contacts of infected servicemen has also undoubtedly contributed greatly to the decrease in the number of new infections.

No changes in the regulations governing venereal diseases have been made during the past year.

JOSPH SORKNESS, M.D., Chairman

Supplementary Report of Committee on Venereal Diseases

NOTE: The following letter was received by President Frank Darrow too late to be considered by the Committee on Venereal diseases. It seems worthy of consideration.

"We of the Seventh service command appear to have reached a stalemate in our fight against the venereal diseases. The venereal rates for the army in this area showed steady downward trend until the middle of 1943. Since that time we have at best only held our own. Rates for the first two months of 1944 are actually 50% higher than those of the corresponding months of 1943. It appears, then, that we are faced with the probability of a reversal of the favorable trend of recent years.

I am addressing you as the representative of the medical profession of the state of North Dakota to enlist even greater aid from that important group in our effort to reduce the toll of venereal disease in our ranks. Let any physician fail to recognize the opportunities for contribution to this end, the following means are submitted for his consideration:

1. Refuse to treat officers or enlisted personnel of the army for venereal disease without the specific approval in each case of the soldier's commanding officer. Army regulations require the soldier to report the existence of symptoms of venereal disease. Failure to do so subjects him to the possibility of disciplinary action. The physician who treats the soldier is thus entering into collusion to circumvent army regulations. Of considerably more practical significance is the fact that the individual undergoing therapy with sulfonamides or arsenicals unknown to his unit officers may be placed in a position to endanger his life and that of his comrades.

2. The physician should support (and lead) community sentiment against prostitution, open or clandestine, with all the weight of his position as a community leader. We would like to ask him to go further—in his public and private contacts to foster the development of those influences in home, school, church, and elsewhere which will strengthen the moral convictions of our youth and confirm them in continent behavior.

3. Support the extension of the community health services; assume leadership in the effort to establish and maintain an adequate preventive medical program for the community. The physician (as guardian of health) bears a heavy responsibility for leadership and detection in these matters.

4. Recognize a grave responsibility in connection with the treatment of civilians with venereal disease; insist upon continuity of treatment to cure, using the services of the health officer, when necessary, to insure this. Share with the health officer a sense of responsibility for contact finding. If a busy practice prevents his active participation in this essential phase of the control effort, the physician may call for the assistance of the health department. Of particular concern to us, of course, are the contacts with military personnel, officer and enlisted, that are frequently obtainable by careful questioning.

5. Sad experience has shown us that present methods in the diagnosis and treatment of gonorrhoea, especially in the female, leave much to be desired. Findings of positive bacteriologic evidence of gonorrhoea in the absence of symptoms have been shown to extend in an appreciable percentage of cases beyond the third month of observation. A disturbingly large number of individuals repeatedly named as the probable source of a gonorrhoeal infection show no clinical or bacteriological evidence of the disease. Reports occur with alarming frequency which indicate that women under treatment for gonorrhoea have continued to infect soldiers. In the face of these convincing demonstrations of the inadequacies of diagnostic, treatment, and control measures what is our recourse? Several safeguards suggest themselves:

(a) A more cautious attitude on the part of the physician toward the individual under suspicion of gonorrhoeal infection—in particular, a greater reluctance to accept the negative laboratory report or negative clinical evidence is indicated.

(b) Improvements in the thoroughness of physical examination including: (1) greater use of laboratory services (darkfield) in the detection of the Treponema pallidum; (2) better technic in obtaining specimens for Gram stain or culture in gonorrhoea suspects and the recognition of the necessity for repeated examinations; (3) greater use of the consultant and laboratory services of the health department in doubtful cases.

6. Observations on the inadequacy of present methods have implications which the cautious physician will immediately recognize. In particular I should point out:

(a) The medical absurdity inherent in the certificate of freedom from venereal disease and the dangers involved in the common practice of giving patients (negative) laboratory reports.

(b) The responsibility which the physician must assume for attempting to control the sexual activities of his patient until the probability of continuing infectiousness has been reduced to a minimum. This will necessitate carefully explaining to each patient the nature of his disease and the responsibility to his family and to society which the diagnosis entails. It may necessitate blunt warning to the careless; the invocation of legal measures against the recalcitrant.

(c) The need for larger participation of the private practitioner in the effort to "sell" modern venereal disease prophylaxis to the public and especially to his patients.

Yours very sincerely,

H. C. MOORE, Colonel, MC,,

Surgeon.

P. S. Dr. Pelouze, assistant professor of urology at the University of Pennsylvania, has recently developed many of these points in an arresting article in the March issue of Venereal Disease Information. A consideration of his observations and deductions is recommended to all of our profession who would serve intelligently in this vital phase of the war effort.

Industrial Health

Your committee on Industrial Health did not hold an official meeting during the past year.

We wish to repeat and emphasize the principles of the national program for industrial health, namely: first, to provide adequate medical service within industry, second, to investigate and accurately report occupational disease and injury, and third, to provide instruction to industrial groups concerning the prevention and control of occupational disease.

The sixth annual congress on industrial health conducted in Chicago in February, followed the congress on medical education. A special effort was made to induce the deans of the medical schools and other educators to spend some time at the industrial sessions for the purpose of acquainting themselves with the increasing magnitude and importance of this field of medical service. This attempt, though not highly successful, was deemed worthy of repetition. At any rate, the council on medical education is now inclined to take a more serious view of educational requirements for industrial medicine than formerly, and joint sessions for the discussion of both undergraduate and postgraduate study are in the making.

The suggestion was made that there were not enough discussions of industrial medicine and surgery in our state and district medical meetings.

C. J. GLASPEL, M.D., Chairman.

Report of the Delegate to the American Medical Association

Dr. A. P. Nachtwey, delegate, submitted the following report, which was referred to the Committee on Reports of the Council, Councillors and Delegate to the American Medical Association:

Your delegate to the American Medical Association begs leave to submit the following report:

The American Medical Association held its 94th annual session in Chicago, June 7 to 9, 1943.

This meeting was unusual in view of the fact that due to war-time conditions there were no exhibits, no social functions and almost no stimulants.

For the first time the House of Delegates, in the opinion of your delegate, really made history in that it prepared machinery to assume the position of leadership in medical matters for the nation, by creation of a Council on Medical Service and Public Relations, which shall have as part of its functions: (1) "to investigate matters pertaining to the economic, social and similar aspects of medical care for all the people; (2) to study and suggest means for the distribution of medical services to the public consistent with the principles adopted by the House of Delegates; (3) to develop and assist committees on medical service and public relations originating within the constituent associations and component societies of the American Medical Association."

The formation of the new Council sprang from resolutions offered by Indiana, Minnesota, New Jersey, Nebraska, Oklahoma, Ohio, New York and a representative of the section on Radiology, all of which resolutions were referred to a Reference Committee on Legislature and Public Relations of which Dr. Thomas A. McGoldrick of New York was chairman.

A brief abstract of reasons for the establishment of a legislative bureau of the American Medical Association in Washington was as follows:

The number of bills of public health and medical interest being introduced in Congress is sharply increasing. In an analysis of bills of public health and medical interest introduced at the 1943 session of Congress, reference was made to 116 bills. This included such matters as extending privileges to sectarian practitioners, appropriations for constructing hospitals, care of mothers and children, benefits for veterans, social security amendments, and reorganization of the public health service: all of which are of vital interest to the medical profession. The appropriations called for in these various public health bills total \$258,074,000.

The principal objections voiced to a more active participation by the American Medical Association in legislative affairs are:

(1) That it would render the Association liable to a large income tax, and (2) that it would lower the prestige of an association which is organized primarily for scientific purposes."

"The American Medical Association cannot be considered a small business enterprise. We understand that its assets are approximately \$7,000,000. According to the report of the board of trustees the gross income from all sources for the fiscal year ending December 31, 1942, amounted to \$1,975,236.30 and the total expenditures amounted to \$1,644,820.96. This shows that the Association made a profit of \$330,415.34 during the year

1942. There seems to be a moral question involved here. Should the American Medical Association, making such a large profit, escape taxation? As patriotic citizens, should we condone this escape? If the Association voluntarily insisted upon paying an income tax, would not this enhance the prestige of the Association now to be referred to?

As to objection two, the lowering of the prestige of the Association by engaging in legislative activities, our experience in this state negates this idea. It depends upon how the activity is conducted."

The Council is organized on a very democratic basis, it includes "the president of the American Medical Association, the immediate past-president and the secretary of the Association, one member of the Board of Trustees, and six members of the Association selected on a regional basis."

The Council is (a) to cooperate with the Board of Trustees and (b) will utilize the functions and personnel of the Bureau of Legal Medicine and Legislation, the Bureau of Medical Economics and the Department of Public Relations in the headquarters office of the American Medical Association in Chicago."

Many of the problems of politics and economic interests were discussed, especially the relation of the hospitals to the medical profession. These will require much study and attention for today there is considerable conflict between them.

The supplementary report on "Hospital Corporations Engaging in the Practice of Medicine" by the trustees of the American Medical Association should be read by every hospital man, as the confusion between the profession and the hospital is increasing.

The address of President Fred W. Rankin of Lexington, Kentucky, was pertinent to the existing war-time conditions and was well received. It would well repay the members of this house of delegates to read the address which is printed in volume 122, number 8, of the *Journal of the American Medical Association*.

The remainder of the transactions of the business of the House of Delegates was carried out in a harmonious manner and as usual, various reference committees performed their respective duties in their usual efficient manner.

Dr. Herman L. Kretschmer of Chicago was named as president-elect of the American Medical Association. He holds a distinguished position in the medical profession and for ten years has been treasurer of the American Medical Association. So he is entirely familiar with the business of the Association.

The House of Delegates adjourned sine die at 12 o'clock, June 9, 1943.

Respectfully submitted,
A. P. NACHTWEY, M.D.,
A.M.A. Delegate.

REPORTS OF SPECIAL COMMITTEES

Committee on War Participation

Dr. L. W. Larson, chairman, submitted the following report, which was referred to the Reference Committee on the Report of the Secretary and Special Committees:

This committee did not meet during the past year. Its individual members assisted the chairman from time to time, however, in his work as state chairman of the Procurement and Assignment Service for Physicians.

North Dakota was not called on during 1943 (and to date) to furnish a quota of medical officers for the armed forces. One physician was allowed to apply for a commission because he insisted on leaving his practice.

The total number of North Dakota physicians in the service at present is 61. Three physicians have been given medical discharges or have resigned. All three have returned to the state.

There is a critical shortage of physicians in several localities in the state. This is mainly in the rural areas and it has been almost impossible to obtain replacements. Some of the areas have rarely had sufficient medical personnel in the prewar days. The citizens get along as best they can by traveling, sometimes for long distances, to a physician. Several of these localities are planning to avail themselves of the benefits included in Public Law 216, whereby the United States public health service and the community cooperate in obtaining a physician and defray-

ing his moving expenses and a three months allowance of \$250.00 a month. The local community pays 25 per cent of the total cost. The physician must be licensed to practice in the state and must agree to practice in the new location for one year.

Postwar Problems: Table 1 indicates the number of so-called "effectives" in practice in North Dakota. The total number of physicians is 373, of which 53 are not in active practice (retired, disabled, semiretired, teachers, public health, state hospitals). This leaves a total of 320 who are actively engaged in the private practice of medicine. Table 2 shows the age distribution of the practitioners. It will be noted that about a third are under 45, and two-thirds are over 45 years of age. Of the latter two-thirds, however, a half are 65 or over and although many of them are very active, the majority must of necessity curtail their activities.

TABLE 1	
Analysis of Medical Personnel in North Dakota	
Physicians in active practice (all ages)	320
Non-effectives (age, disability, etc.)	53
Medical-school teachers	2
Physicians in state hospitals and institutions	13
Physicians in health departments	5
Total physicians in state	373

TABLE 2	
Analysis of Practitioners in North Dakota	
Age Groups	Total No. Percentage
Under 38 years	46 14.4
38 to 45	65 20.3
45 to 65	138 43.1
65 and over	69 21.6
Females	2 .6
Total	320 100.0

The present population in North Dakota is estimated as being 16 per cent less than in 1940, or about 538,000. The physician-population ratio at present, therefore, is one to 1680. This is not much greater than the ratio agreed upon by the Procurement and Assignment Service as being favorable for a general practitioner. An analysis of the situation in North Dakota reveals, however, that an unusually large proportion of our effective physicians are limited specialists. In addition, the distribution of physicians in North Dakota is not favorable to the rural districts, three counties having no physician at all, and in most the ratio is one physician to 3000 people or over.

The postwar problem of absorbing the returning physician-veteran in North Dakota will be simple, provided the majority are willing to locate in rural areas. It is a serious question whether the average physician-veteran will be content to locate in a small town with limited or no hospital facilities. There is much talk these days of expanding hospital facilities in the rural areas, but our planners would do well to consider the problem of obtaining trained medical personnel for these areas who will be content to remain there. Several communities in this state learned, during the depression days, that it takes more than a hospital building to hold a qualified physician. It would appear more sensible to enlarge present facilities and provide all-year surfaced roads and ambulances so patients from the sparsely settled areas can be transported to centers, large or small, where hospital facilities and medical personnel are available and adequate.

The committee will continue to cooperate with the Procurement and Assignment Service in furnishing medical officers for the armed forces and in assuring the civilian population of the state the most effective medical service possible under existing circumstances.

L. W. LARSON, M.D., Chairman.

NEW BUSINESS Dues

After thorough discussion and for want of a motion to change the annual dues, the speaker announced that the dues will remain the same as last year.

Nominating Committee

The Secretary announced that President Darrow had appointed the following to the nominating committee: Doctors G. M. Constans, chairman, Bismarck; F. E. Wolfe, Oakes; John C. Fawcett, Devils Lake.

RESOLUTIONS

1. Dr. A. P. Nachtwey presented the following resolution in behalf of the Southwestern district medical society. After its reading, it was referred to the Committee on Resolutions by the Speaker.

RESOLUTION

Whereas, Congress, recognizing the need for assisting financially the wives of soldiers in connection with maternity and infant care, appropriated in March, 1943, \$1,200,000.00 for such purpose and in October, 1943, made an additional grant of \$18,600,000.00 for this purpose, and specifically stated that the plans for administering this aid were to be developed and administered by the state health agencies,

(It further developed that this grant of Congress was given to the Department of Labor, who in turn developed a "master plan," and the representatives of the Children's Bureau of the labor department came to the authorities of our state and were told that this plan must be accepted.)

And Whereas, the Emergency Maternal and Infant Care Program as presented by the United States Department of Labor through the North Dakota state department of health discriminates against the rural practitioner who has inadequate hospital facilities;

Whereas, the funds as allotted by the Emergency Maternal and Infant Care Program are not sufficient to provide adequate hospital care, and

Whereas, the Emergency Maternal and Infant Care Program, as now presented, interposes a third party in the form of the state department of health as intermediary in making the financial arrangements between patient and doctor;

Whereas, the Emergency Maternal and Infant Care Program, as presented, tends to dictate or establish fees and medical procedure;

Whereas, the provisions for the carrying on of such a program as now in operation expire June 30, 1944;

Be It Therefore Resolved, that the Emergency Maternal and Infant Care Program as presented be rejected in its entirety;

Be It Further Resolved, that any plan presented shall not be accepted by any individual doctor or local society until approved by the state medical society;

Be It Further Resolved, that the state medical society present to the appropriate committees of Congress a workable plan whereby the best interests of the wives and infants of men in service be served during the present emergency;

Be It Further Resolved, that this society make the following recommendations:

First, the money allotted for maternal and pediatric care be paid directly to the mother as are the present allotments for care of mother and dependents; and let it be further recommended that the mother be allowed to make all financial arrangements between herself and her doctor;

Second, that information concerning the proposed plan be released by the state department of health to the doctors prior to any notification of either the mothers participating or the public.

H. E. GULCIEN, M.D., Chairman.

H. L. REICHERT, M.D., Secretary.

2. The Speaker referred the resolution concerning the Maternal and Infant Care Program as contained in the Secretary's report, to the Committee on Resolutions.

3. Dr. Fjelde announced that the Cass County district society desired to present a resolution concerning prepaid medical insurance plans, with special reference to the relationship of such plans to the Blue Cross hospital plan. The Speaker directed Dr. Fjelde to present a formal resolution to the Committee on Resolutions for consideration.

4. The Speaker referred the last paragraph in the report of the Committee on Medical Economics, pertaining to its recom-

mendation that our delegate to the American Medical Association be instructed to use his influence to further the establishment of an effective Washington office which would adequately serve the interests of the people and ourselves, to the Committee on Resolutions, with the instructions that this committee present a formal resolution in its report at the next session of the House of Delegates.

Reference Committees

The Speaker announced the personnel of the reference committees as follows:

To consider the reports of the Secretary and of Special Committees: D. J. Halliday, chairman, Kenmare; M. J. Moore, New Rockford; P. H. Woutat, Grand Forks.

To consider the reports of the Council, Councillors and Delegate to the A.M.A.: A. H. Reiswig, chairman, Wahpeton; J. H. Fjelde, Fargo; R. H. Waldschmidt, Bismarck; A. W. MacDonald, Valley City.

To consider the reports of the Standing Committees: E. H. Boerth, chairman, Buffalo; G. M. Constans, Bismarck; John C. Fawcett, Devils Lake; C. C. Smith, Mandan; A. P. Nachtwey, Dickinson.

Committee on Resolutions: R. C. Little, chairman, Mayville; W. A. Wright, Williston; W. W. Wood, Jamestown.

Committee on Credentials: R. W. Van Houten, chairman, Oakes; W. E. G. Lancaster, Fargo; C. J. Glaspel, Grafton; R. T. O'Neill, Minor.

Adjournment

The first meeting of the House of Delegates was adjourned at 9:10 P. M. on motion made by Dr. Boerth, seconded by Dr. Constans and carried. It was agreed that the Second Session of the House would be called at 10:00 A. M., Monday, May 8.

SECOND SESSION

of the HOUSE OF DELEGATES

Monday, May 8, 1944

The second session of the House of Delegates was called to order by the Speaker, Dr. John H. Moore, at 10:15 A. M. in the South Room, Gardner Hotel, Fargo, N. Dak.

The Secretary called the roll. Eighteen delegates responded, and the Speaker declared a quorum present. The following delegates and alternates responded: Doctors W. E. G. Lancaster, Fargo; E. H. Boerth, Buffalo; John C. Fawcett, Devils Lake; C. J. Glaspel, Grafton; P. H. Woutat, Grand Forks; W. A. Liebler, Grand Forks; W. A. Wright, Williston; D. J. Halliday, Kenmare; A. H. Reiswig, Wahpeton; A. W. MacDonald, Valley City; G. M. Constans, Bismarck; C. C. Smith, Mandan; R. H. Waldschmidt, Bismarck; R. W. Van Houten, Oakes; A. P. Nachtwey, Dickinson; W. W. Wood, Jamestown; R. C. Little, Mayville; and M. J. Moore, New Rockford.

The Secretary read the minutes of the first session, which were approved as read.

Introduction of Distinguished Guests

Dr. Nachtwey introduced Dr. E. H. Skinner of Kansas City, Missouri, member of the board of trustees of the National Physicians Committee and delegate from the section on Radiology in the House of Delegates of the American Medical Association. Dr. Skinner reviewed the activities of the American Medical Association as they pertain to medical economics.

The Speaker introduced Dr. W. W. Bauer, secretary of the Bureau of Health Education of the American Medical Association. Dr. Bauer gave an interesting report of the subcommittee hearing which he attended recently in Washington on the Emergency Maternal and Infant Care Program, and at which he presented the point of view of the American Medical Association.

Election of Officers

Dr. G. M. Constans, chairman of the nominating committee, presented the following report and moved its adoption. The motion was seconded by Dr. Fjelde, and carried unanimously.

Doctors: F. L. Wicks—president.

James F. Hanna—president-elect.

A. E. Spear—first vice president.

P. G. Arzt—second vice president.

John H. Moore—speaker.

L. W. Larson—secretary.

W. W. Wood—treasurer.

A. P. Nachtwey—delegate to A.M.A., 1944.
 W. A. Wright—alternate delegate to A.M.A., 1944.
 P. H. Burton—councillor, first district.
 C. J. Glaspel, councillor, third district.
 N. O. Ramstad, councillor, sixth district.

In addition, in place of Doctor Arzt who, we understand, would not now be eligible, Dr. Joseph Sorkness—councillor, seventh district.

State board of medical examiners (term three years): Doctors C. W. Schoregg, C. J. Glaspel, F. L. Wicks.

Your committee would like to present the following recommendation: that future nominating committees be appointed by the incoming president at the onset of his term of office.

F. E. WOLFE, M.D.
 G. M. CONSTANS, M.D.
 J. C. PAWCETT, M.D.

The Speaker, by unanimous consent, ruled that the portion of the nominating committee's report pertaining to the appointment of subsequent nominating committees by the incoming presidents at the onset of their terms of office be reconsidered under new business.

Selection of 1945 Meeting Place

The Secretary announced that no formal invitations had been received. Upon motion made by Dr. Waldschmidt, seconded by Dr. Reiswig and carried, Minot was selected for the 1945 convention.

Reference Committee on Reports of Secretary and Special Committees

Dr. D. J. Halliday, chairman, presented the following report which was adopted section by section and as a whole:

We particularly wish to call the attention of the House of Delegates to two recommendations as submitted by the Secretary:

1. That the Committee on Public Policy and Legislation be authorized to submit a pointed questionnaire on questions of medical economics to all candidates for nomination to congressional offices this year, and that photostatic copies of the answers be sent to the members of the Association.

2. That the Council be requested to allot \$50.00 per year to the North Central medical conference.

We wish also to commend the Secretary for his untiring and excellent work during the past year.

We also recommend the adoption of the report as submitted by the Committee on War Participation, and wish to commend the committee for its work. We are sure it will continue to handle this difficult problem with efficiency.

We are sorry to call the attention of the delegates to the fact that the Committee on Nursing Education failed to submit a report. Your Reference Committee moves the adoption of the report as a whole.

D. J. HALLIDAY, M.D.
 P. H. WOUTAT, M.D.
 M. J. MOORE, M.D.

Reference Committee on Reports of the Council, Councillors, and Delegate to the A.M.A.

Dr. Reiswig, chairman, presented the following report, which was adopted section by section and as a whole on motion of Dr. Reiswig, duly seconded and carried:

1. Report of the chairman of the Council: Your Reference Committee has carefully considered the report of the Council as submitted by its chairman, Dr. N. O. Ramstad. This committee finds the affairs of the state association have been efficiently administered by the Council.

2. Reports of the Councillors: Your Reference Committee recommends the adoption of the reports of the councillors and we are pleased to note that all the councillors report harmony and good-will prevailing in all districts.

The committee has noted that in District 8, there were no meetings held at all. Your committee would recommend that an earnest effort be made so that at least a few meetings be held during the year.

Your committee has noted the suggestion of the councillor from the Third district in which a return to the former plan of organization of the House of Delegates in which council mem-

bers participated be urged. Your committee believes that the present plan of organization of the House of Delegates should be continued.

The committee notes that an individual is practicing medicine in the Fifth district at Dazey, N. D., without a license. This, in spite of repeated requests of the Fifth district of our Association to the state board of medical examiners to effect his removal. This committee would like to urge that active steps be taken to effect his removal. Your Reference Committee believes that the reports of the councillors indicate that all the district societies are well organized and that enthusiasm is being maintained.

3. Report of the Delegate to the American Medical Association: Your Reference Committee recommends the adoption of this report and believes that Doctor Nachtwey is to be commended on his very fine report as delegate to the A.M.A.

A. H. REISWIG, M.D.
 J. H. FJELDE, M.D.
 R. H. WALDSCHMIDT, M.D.
 A. W. MACDONALD, M.D.

Report of Reference Committee to Consider the Reports of Standing Committees

Dr. E. H. Boerth, chairman, presented the following report, which was adopted section by section and as a whole on motion of Dr. Boerth, duly seconded and carried, after discussion:

1. Committee on Cancer. We recommend the adoption of the report of the Committee on Cancer. The committee regrets that there has been no meeting of the Committee on Cancer during the past year but we wish to commend Doctor Larson, the chairman, for his remarks and the splendid report he brought in, in view of the fact that there had been no meeting. We also concur in the remarks made in the last paragraph of the report that the component medical societies are urged to devote at least one program a year to the early diagnosis and treatment of cancer.

2. Committee on Pneumonia Control. Your Reference Committee recommends the adoption of the report of the Committee on Pneumonia Control and at this time also wishes to express appreciation to the members of the committee who gave so freely of their time to meet with the members of the state department of health. The report of this committee shows that they had the best interests of the medical profession of the state at heart.

3. Committee on Industrial Health. Your Reference Committee recommends the adoption of the report of the Committee on Industrial Health. The members of the committee heartily approve of the suggestion made in the last paragraph of the report which states that there were not enough discussions of industrial medicine and surgery in our state and district medical meetings, and urges that meetings be held, especially in the larger district medical societies.

4. Committee on Necrology and Medical History. Your Reference Committee recommends the adoption of the report of the Committee on Necrology and Medical History and wishes at this time to pay special commendation to the members of the committee for their excellent presentation. The committee regrets that such a lengthy report was necessary because so many of the society members passed away during the preceding year. The committee requests that the Speaker of the House of Delegates ask the members of the House of Delegates to stand for a period of one minute in silent tribute to these members who are no longer with us. (Members of the House of Delegates stood one minute in silent tribute.)

5. Committee on Maternal and Child Welfare. Your Reference Committee recommends the adoption of the report of the Committee on Maternal and Child Welfare. The second paragraph of this report on page 34, is being covered in another committee. The inclusiveness of the report shows careful preparation by this committee and your Reference Committee urges that special attention be paid to the recommendations for reducing morbidity and mortality as recommended by the American Committee classification.

6. Committee on Public Health. Your Reference Committee recommends the adoption of the report of the Committee on Public Health with the exception of paragraph two in reference

to Senate Bill No. 77, providing permissive legislation for providing full-time health districts. Your Committee does not feel that it wishes to reconsider the action taken at the Fifty-sixth annual session.

7. Committee on Medical Economics. Your Reference Committee recommends the adoption of the report of the Committee on Medical Economics with the following exception:

It has come to the attention of the members of your Reference Committee that some inequities exist in the public welfare board fee schedule as mentioned in Item 2, paragraph 1, of the report. We recommend a revision of this fee schedule.

Your Reference Committee has not considered the last paragraph of the report recommending that our delegate to the American Medical Association be instructed to use his influence to further the establishment of an effective Washington office, since this is embodied in a resolution to be recommended before the House of Delegates.

We wish to commend the members of this committee for the untiring efforts and zeal they have displayed on behalf of the medical profession of the state of North Dakota.

8. Committee on Medical Education. Your Reference Committee recommends the adoption of the report of the Committee on Medical Education and wishes to extend to Doctor French and the members of his committee the compliments of your Reference Committee, fully realizing the difficulties which he is laboring under during war time.

9. Committee on Fractures. Your Reference Committee recommends the adoption of the report of the Committee on Fractures.

10. Committee on Crippled Children. Your Reference Committee recommends the adoption of the report of the Committee on Crippled Children.

11. Committee on Venereal Disease. Your Reference Committee recommends the adoption of the report of the Committee on Venereal Disease.

12. Committee on Public Policy and Legislation. Your Reference Committee recommends the adoption of the report of the Committee on Public Policy and Legislation, and concurs wholeheartedly in the recommendation of the committee that there should be a full and general discussion before this House of Delegates regarding the status of refugee physicians. Your Reference Committee does not recommend that refugee physicians be admitted into this state to practice medicine and surgery until they are citizens of the United States.

Report of Committee on Resolutions

Dr. R. C. Little, chairman, presented the following report which was adopted section by section and as a whole, on motions of Doctor Little, duly seconded and carried:

1. *Emergency Maternal and Infant Care Program.* Two resolutions have been presented covering this subject; one by the Secretary as printed in the handbook and the other by Dr. A. P. Nachtway in behalf of the Southwest district medical society. Your Committee believes that inasmuch as the House of Delegates and the Council passed resolutions defining its policy with relation to the Emergency Maternal and Infant Care Program in 1943, and there is no apparent need for a change in this policy at the present time, the resolution submitted by Dr. A. P. Nachtway be rejected and the resolution by the Secretary be adopted. This resolution is as follows:

RESOLUTION

Whereas, the program now in operation for maternal and infant care for wives and infants of enlisted men in the four lower grades is unsatisfactory to the medical profession, and,

Whereas, the emergency provisions for the carrying on of the program as now in operation expire June 30, 1944, be it therefore,

Resolved, that the House of Delegates of the North Dakota State Medical Association recommends that Congress abandon the program as now constituted on that date, and be it further

Resolved, that under any new program after June 30, 1944, the benefits be designated supplemental aid and take the form of an allotment for medical, hospital, maternity and infant care, similar to the allotments already provided for the maintenance of dependents, leaving the actual arrangements with respect to fees to be fixed by mutual agreement between the enlisted man's wife and the physician of her choice, and be it further

Resolved, that the American Medical Association be urged to present to the appropriate committees of Congress a concrete plan embodying this principle, to the end that the present and ultimate best interests of the wives and infants of men in service be served during the present emergency.

2. *Prepaid Medical Insurance Plans.* The resolution presented by the Cass County medical society is as follows:

RESOLUTION

Be It Resolved, that due to public pressure regarding prepaid medical plans, a committee be appointed to study the various angles and present a report at the next meeting.

And Be It Further Resolved, that such a plan be administered in conjunction with Blue Cross, but under the control of a committee with adequate medical representation.

O. A. SEDLAK, M.D.

W. E. G. LANCASTER, M.D.

Your Committee on Resolutions desires to draw to your attention the report of the Committee on Medical Economics in 1942 and a further report in 1944 concerning prepaid medical insurance plans. These reports indicate that the Association through its Committee on Medical Economics has maintained an interest in the subject and your Committee does not feel that the resolution presented by the Cass County medical society is necessary. We recommend that the Committee on Medical Economics be instructed to continue its study of such plans and that separate committees for such studies be not authorized at this time.

3. *Postwar Planning for Health.* In view of the fact that various governmental agencies and lay organizations are concerning themselves with postwar planning for health it is the opinion of your Committee on Resolutions that the North Dakota state medical association, through its properly appointed representatives, should be represented in such conferences whenever and wherever possible.

4. *Federal Medical Legislation.* Your Committee on Resolutions wishes to present the following resolution:

RESOLUTION

Whereas, in the judgment of the House of Delegates of the North Dakota state medical association, there is urgent need for the proper representation of the medical profession in Washington, and,

Whereas, it is only proper that the American Medical Association should function in this respect because it does and must speak for the medical profession in the United States, now therefore,

Be It Resolved, that the House of Delegates of the American Medical Association be urged to establish adequate representation in Washington at once, so that members of the Congress may readily have available authoritative information on medical matters and the views of the medical profession may be imparted to members of Congress.

5. *Resolution Honoring Dr. George M. Williamson.* Your Committee wishes to present the following resolution:

RESOLUTION

Whereas, Dr. George M. Williamson, at his own request, has retired from the Council of the North Dakota State Medical Association, and

Whereas, Doctor Williamson has given unsparingly of his time and effort as president of the Association and as a member of the council for many years,

Now, Therefore, Be It Resolved, that the House of Delegates extends to him its gratitude for the service he has rendered, and expresses its hope that he will continue to manifest an interest in the affairs of the Association.

6. *Vote of Thanks to Cass County Medical Society.* Your Committee on Resolutions wishes to extend a vote of thanks to the Cass County medical society and the committee members on local arrangements for the splendid program which has been arranged, the facilities which have been placed at the disposal of the Association, and the entertainment furnished.

NEW BUSINESS

Nominating Committee—When Appointed

Dr. Constans reintroduced the recommendation of the nominating committee, "that future nominating committees be ap-

pointed by the incoming president at the onset of his term of office." The motion was seconded by Dr. Nachtwey and carried unanimously after discussion.

Election to Honorary Membership

Dr. J. E. Countryman, formerly of Grafton, was elected to honorary membership after motion made by Dr. Glaspel, seconded by Dr. Frank Darrow and carried.

Venereal Disease Problem

A motion was made by Dr. Halliday, seconded by Dr. Waldschmidt and carried, that the Secretary include a copy of the letter on venereal disease which was received from the Seventh service command medical headquarters in Omaha and printed in the handbook as a supplementary report of the Committee on Venereal Disease, in the next news bulletin to be sent to the membership from the Secretary's office.

Adjournment

The House of Delegates adjourned sine die at 12:30 P. M.

SCIENTIFIC PROGRAM

General Sessions, Elks' Auditorium

Monday, May 8, 1944

2:00 P. M.—Address of Welcome—Dr. Frank Darrow, Fargo, President, North Dakota State Medical Association.

2:10—Library of Bureau of Health Education—Dr. W. W. Bauer, Chicago, Illinois, Director Bureau of Health Education, The American Medical Association.

2:50—"Sterility"—Dr. Charles M. McLane, New York City, Attending Staff, Obstetrics and Gynecology, The New York Hospital; Instructor, Cornell University Medical College, New York.

3:30—Recess to view exhibits.

3:45—"Navigating the Medical Future"—Dr. Edward Holman Skinner, Kansas City, Missouri, Executive Committeeman of the National Physicians Committee for the Extension of Medical Service; Past-president the American Roentgen Ray Society.

4:30—"Urinary Tract Infections in Childhood"—Dr. Henry F. Helmholz, Rochester, Minnesota, Professor of Pediatrics The University of Minnesota Graduate School of Medicine, The Mayo Foundation.

Tuesday, May 9, 1944

9:00 A. M.—"Trusretethral Surgery"—Dr. N. O. Brink, Bismarck, N. D.

9:30—"The Symptom of Headache"—Dr. Lawrence R. Boies, Minneapolis, Minnesota, Professor of Otolaryngology University of Minnesota Medical School.

10:20—Recess to view exhibits.

PRESIDENTIAL ADDRESS*

Dr. Frank Darrow

Fargo, North Dakota

Members of the North Dakota State Medical Association and Guests:

Another year has rolled around and a busy one for all of us. It becomes my privilege to give an accounting of my stewardship and perhaps some observations about our place in the order of things.

There are in North Dakota three hundred and forty practicing physicians. Divided into a population of six hundred and fifty thousand, we find one doctor to approximately nineteen hundred persons. Sixty-three are serving our country as members of the armed forces, sixty of whom are members of this association. Approximately twenty per cent of North Dakota's doctors have gone to war. Ten members of our association have died

*Prevented before the North Dakota State Medical Association, Tuesday, May 9, 1944.

10:40—"Cardiac Irregularities"—Dr. R. O. Goehl, Grand Forks, N. D.

11:10—"Common Disorders of the Skin"—Dr. Henry E. Mickelson, Minneapolis, Minnesota, Professor of Dermatology and Syphilology and Director of Division of Dermatology The University of Minnesota Medical School.

2:00—Presidential Address—Dr. Frank I. Darrow, Fargo. 2:30—"Indications for the Surgical Treatment of Peptic Ulcer"—Dr. Carl G. Morlock, The Mayo Clinic, Rochester, Minnesota.

3:20—"Observations on Tropical Diseases"—Lt. J. A. Homes, M.C., U.S.N.R., F.A.C.S.

4:00—Closing, Announcements.

INSTALLATION OF PRESIDENT

Tuesday, May 9, 1944, 2:15 P. M.

Dr. FRANK DARROW: At this time it is my privilege to ask Dr. Williamson and Dr. Burton to usher up your newly elected president, Dr. F. L. Wicks.

Dr. P. H. BURTON: Dr. Wicks, our president-elect.

Dr. DARROW: I think this is the appropriate time to express my thanks to everybody from the officers on down to the members and back again up to the officers, never forgetting in the middle of this, Doctor Larson, our chief worker, whom I must give special mention to. I now turn over to Dr. Wicks this gang of—well you can read about them in your newspapers and find out what they really amount to—and treat them accordingly.

Dr. F. L. WICKS: Thank you, Doctor Darrow. Let me be the first to congratulate you on your most successful administration. Members of the Association: First I want to thank my friends, Doctors Burton and Williamson, for helping me to the platform, I think I could use their services a lot longer. In accepting the gavel from Dr. Darrow, I recognize this as one of the highest honors that could come to me. I am deeply grateful and thank you. I will endeavor to merit your trust and confidence in me. It is with a sincere feeling of humility that I start the duties of the year, to try to emulate in a manner the activities of the past presidents. I trust that the fine feeling and cooperation that have prevailed may prevail in the future. I feel, too, that the other officers, the House of Delegates, Councillors, and the committees at large all share in the administration of the Association. It is to be remembered that each doctor represents the profession to a large number of the laity. Now, I pledge my best efforts and ask your cooperation. I thank you.

during the past year. Five doctors have come into the state to practice medicine.

North Dakota has met all quotas assigned to it by the Office of Procurement and Assignment completely and promptly. This can only mean that medical men have responded to their nation's call in a manner that gives us reason to be a little proud. We are apt to think our efforts go unnoticed.

In a recent nation-wide broadcast by Cedric Foster from Boston, the medical profession was eulogized in no uncertain terms. It was pleasant to listen—and indicated that there is a real appreciation by thoughtful people. He also paid high tribute to you on the home front, and pointed out the many sacrifices made necessary by the lack of doctors at home. I think I can safely say that

our conduct in deeds, and, when necessary, sacrifices, in doing the job, will play a large part in deciding what type of medicine will be practiced in the future. It will be our performance rather than any arguments our spokesmen may make that will determine public opinion. Let us place our faith in good works. Good will flows toward those who manage their own affairs successfully.

In turn may we be ever mindful of the still greater sacrifices made by those who are in the armed forces. We should be the first to sing their praises and make their homecoming adjustments easy and pleasant. If situations arise where preference is to be shown, let us be the first to see that such preference is given to those returning from the war. In this way the great tradition of medical ethics will write another chapter to point to with pride. This will solidify our ranks as no other action can do.

Politically and from the standpoint of the voting franchise, we are an insignificant minority. Although our numbers are small—as yet there is no alternate nor substitute for medical care. Perhaps our greatest untried strength lies in this fact. Let us endeavor, however, never to find it necessary to use this strength as a weapon for our own ends.

We are met here in an association of professional men and women to learn from each other. Our purposes are lofty and unselfish as defined by our first constitutional provision. Just as this state-wide association is made up from county and district societies, so is our larger unit, the American Medical Association, made up from the various state organizations. I mention this to remind you of the completely fair and democratic nature of our organization. We cannot conceive of a better manner of organization. No one is denied a hearing. During this year I was told by a government official that his bureau could not confer with the medical profession as a whole as they had no one who truly represented them. He said "The American Medical Association did not represent the medical profession and that each doctor had a different opinion." A powerful organization in our own state editorialized that a clique of organized medicine was disgracing the State of North Dakota. I speak of this in order that you may know that your elected representatives have been questioned as to their authority to speak for you on questions that involve the opinions of medical men as a whole. I suggest that public policy be freely and thoroughly discussed in your local societies to the end that the representatives you do elect will be in fact representative. Minority opinion will always exist in an organization such as ours but let it express itself in open meeting first so that your associates may have the benefit of such opinion. There is little evidence of any great discord in our ranks but such as will be voiced you can be sure will be magnified, and very probably distorted by those opposed to our purposes.

We are passing through a period in the history of man when we may safely say that the world is sick. Everywhere the men of nations are pitted in conflict vying in methods of killing each other and destroying cities, homes and the means of livelihood and life itself. It is

no wonder that some attention has been directed towards the practice of medicine which is the outstanding profession devoted to methods of protecting, preserving and saving life. We are the target of myriads of tracts, for the most part critical, of our inability to make available to all those benefits we dispense.

Formerly these criticisms generally came under one of three headings:

1. "The high cost of medical care."
2. Large groups of the people do not receive adequate medical care.
3. The great difficulty of catastrophic illness.

Today social security has become the political catch phrase. Utopian schemes have once more become the popular theme. Promises are made and analogies drawn that suggest the millennium is just around the corner if we will only revolutionize our antiquated methods. As physicians, we are especially interested, inasmuch as our profession is one of the most prominent parts of these schemes. Also as physicians we have learned to believe in evolution and progress, not revolution and destruction.

There have been enumerated over 60,000 postwar planning bodies in the United States alone. Many, if not a majority, of the more comprehensive plans contain a scheme for the socialization of medicine. These plans demand the rights and benefits of each special group that puts them forward but no mention is made of personal responsibility on the part of citizens so paternalized and pampered. The planning bodies are so numerous and the babble of voices so confusing, probably most of the plans will fall from sheer weight of numbers. Our special interest lies in the inclusion of socialized medicine in their blueprints.

Let us remember the trend of social and political organization is toward federalization and away from local control. Responsibility is being centralized and with it authority and power. We are now in this war, I take it, to prevent those in authority and power in two nations from taking over the whole world and ruling it by such central power and authority. If history teaches us anything we must certainly know that tyranny, not the millennium, is just around the corner, in the event of completely centralized power. Because of this threat there is a tendency to take two opposing views, each going all the way out, either to complete socialization on the one hand or reactionary stagnation on the other.

It is the purpose of this message to point out that now is the time for every practitioner of a healing art to consider well the problem. Let each medical man from those in high places down to the most humble practitioner put his mind to these problems and it is likely that his contribution will be an important factor in the final decision.

No doubt you are aware much has been done already by the medical profession. Experimental groups of prepaid medical care are now functioning in California, Colorado, Delaware, Massachusetts, Michigan, Missouri, New Jersey, New York, (3) North Carolina (2) Oregon, Pennsylvania, Texas, Utah, and Washington. Programs which are not entirely completed have been undertaken in Connecticut, Indiana, Maine, Nebraska,

New Hampshire, Ohio, Oklahoma, Tennessee, West Virginia, and Wisconsin. The number of subscribers to these organizations varies from a few thousand to 600, 455 enrolled in the Michigan Medical Service.

The medical profession has been accustomed to change and progress with the possible exception of a 1500 years period in the middle ages when reverence for authority stifled progress. In modern times where the practice is sound and based on proved scientific facts, the acceptance of a new method or remedy is almost instantaneous and universal. The danger lies in the fact that so often the medical profession seems to be alone in recognizing the danger of taking over new ideas just because of great promises. We have been criticized on numerous occasions by the public because we were not moved by the promises of charlatan or enthusiast. In this connection we think of instances like the famous Turtle serum for tuberculosis and the Coffee Humber cancer cure. So it is with social charlatans and enthusiasts; let us look well into their promises and schemes.

There has been introduced into the lawmaking body of this country a bill, Senate Bill No. 1161, commonly known as the Wagner-Murray-Dingle bill. It is not my

intention to discuss in detail this measure. It is a comprehensive plan which among other things includes socialized medicine. I mention it to call it to your attention and suggest that everyone within reach of my voice read and analyze it for himself. Your neighbors have a right to expect you to know all about it and its implications. I can safely say it will be far-reaching in its effects and whether it becomes a law or not will depend in no small part on public opinion of which you are a part. When you have considered it well, become vocal, tell your representatives and senators your opinion, call the attention of your friends and neighbors to it. Discuss it with them.

Perhaps it is well in these times that we occasionally pause in our scientific discussions and deliberate on our place in society as a whole. We might imagine ourselves on the receiving end of medical practice once in a while. It may develop our sense of values. Nothing is ever quite as important or unimportant as we think it is.

In the words of the Bard of Ayrshire:

*"O wad some giftie gie us
To see ousels as others see us!
It wad frae monie a blunder free us."*

NORTH DAKOTA STATE MEDICAL ASSOCIATION ROSTER - 1944

MEMBERSHIP BY DISTRICTS CASS COUNTY MEDICAL SOCIETY

PRESIDENT	
J. H. Fjelde	Fargo
SECRETARY-TREASURER	
L. A. Nash	Fargo
Bacheller, S. C.	Enderlin
Baillie, W. F.	Fargo
Boerth, E. H.	Buffalo
Bond, J. H.	Fargo
Borland, V. G.	Fargo
Burt, A. C.	Fargo
Burton, Paul H.	Fargo
Clay, A. J.	Fargo
Clark, I. D., Jr.	Casselton
Darner, C. B.	Fargo
Darrow, Frank I.	Fargo
Darrow, Kent E.	Fargo
DeCesare, F. A.	Fargo
Dillard, J. R.	Fargo
Elofson, Carl E.	Fargo
Fjelde, J. H.	Fargo
Fortin, H. J.	Fargo
Fortney, A. C.	Fargo
Foster, G. C.	Fargo

Geib, M. J.	Fargo	Nichols, Arthur A.	Fargo
Gronvold, F. O.	Fargo	Nichols, Wm. C.	Fargo
Hanna, J. F.	Fargo	Oftedal, Axel	Fargo
Haugen, H.	Fargo	Oftedal, Trygve	Fargo
Haugrud, E. M.	Fargo	Ostfield, J. R.	Fargo
Hawn, Hugh W.	Fargo	Patterson, T. C.	Lubon
Heilmann, Charles O.	Fargo	Pray, L. G.	Fargo
Hendrickson, G.	Enderlin	Richter, E. H.	Hunter
Huntley, H. B.	Kindred	Rostel, Hugo	Fargo
Hunter, G. Wilson	Fargo	Sand, Olaf	Fargo
Ivers, G. W.	Fargo	Schatz, George	Fargo
Joistad, A. H.	Fargo	Sedlak, Oliver A.	Fargo
Kaess, A. J.	Fargo	Sinner, B. L.	Fargo
Klein, A. L.	Fargo	Skelsey, Albert W.	Fargo
Lancaster, W. E. G.	Fargo	Stafne, Wm A.	Fargo
Larson, G. A.	Fargo	Stolinsky, A.	Boise, Idaho
Lewis, T. H.	Fargo	Swanson, J. C.	Fargo
Lumburg, A. M.	Fargo	Tainter, Rolfe	Fargo
Long, W. H.	Fargo	Tronnes, Nels	Fargo
Mazur, B. A.	Fargo	Urenn, B. M.	Fargo
Miller, H. W.	Casselton	Watson, E. M.	Fargo
Morris, Arthur C.	Fargo	Weible, Ralph D.	Fargo
Nash, Leo A.	Fargo	Winn, W. R.	Fargo

DEVILS LAKE DISTRICT MEDICAL SOCIETY

PRESIDENT	
John D. Graham	Devils Lake
SECRETARY-TREASURER	
John C. Fawcett	Devils Lake
Call, A. M.	Rugby
Clayman, Sidney G.	San Haven
Drew, G. F.	Devils Lake
Engesather, J. A. D.	Brocket
Fawcett, D. W.	Devils Lake
Fawcett, J. C.	Devils Lake

Fawcett, N. W.	Devils Lake	McIntosh, G. J.	Devils Lake
Fox, W. R.	Rugby	McKeague, D. H.	Maddock
Graham, J. D.	Devils Lake	Palmer, Dolson	Cando
Greengard, M.	Rolla	Reed, Paul	Rolette
Horsman, A. T.	Devils Lake	Serhus, L. N.	Rolette
Hughes, Bernard J.	Rolla	Sihler, W. F.	Devils Lake
Keller, E. T.	Rugby	Smith, Clinton	Devils Lake
Kohlmeyer, F. C.	Lakota	Stickelberger, J. S.	Oberon
Matson, Roger H.	McVille	Toomey, G. W.	Devils Lake
McDonald, J. A.	Cando	Vigeland, J. G.	Brinsmade

GRAND FORKS DISTRICT MEDICAL SOCIETY

PRESIDENT	
T. Q. Benson	Grand Forks
SECRETARY	
A. F. Jensen	Grand Forks
Alger, L. J.	Grand Forks
Bartle, J. P.	Langdon
Benson, T. Q.	Grand Forks
Benwell, H. D.	Grand Forks
Burrows, F. N.	Bathgate
Brown, G. F.	Grand Forks
Campbell, R. D.	Grand Forks
Canterbury, E. A.	Grand Forks
Caveny, K. P.	Langdon
Countryman, G. L.	Grafton
Countryman, J. E.	Arch Cape, Ore.
Dailey, Walter C.	Grand Forks
Deason, Frank W.	Grafton
Field, A. B.	Forest River
Flaten, A. N.	Edinburg
French, H. E.	Grand Forks
Glaspel, C. J.	Grafton
Glaspel, G. W.	Grafton

Gochl, R. O.	Grand Forks
Griffin, V. M.	Grand Forks
Grinnell, E. L.	Grand Forks
Haagenson, E. C.	Grand Forks
Hardy, N. A.	Minto
Haugen, C. O.	Larimore
Hetherington, J. E.	Grand Forks
Jensen, A. F.	Grand Forks
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Landry, L. H.	Walhalla
Law, H. W. F.	Grand Forks
Leigh, R. E.	Grand Forks
Lieberl, W. A.	Grand Forks
Lohrbauer, L. T.	Grand Forks
Lommen, C. E.	Fordville
Mahowald, R. E.	Grand Forks
Moore, John H.	Grand Forks
Mulligan, V. A.	Langdon
Muus, H. O.	Grand Forks
Panek, A. F.	Milton
Peake, Margaret F.	Grand Forks
Quale, V. S.	Grand Forks

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Carr, Andy M.	Minot
Craise, O. S.	Towner
Cronin, D. J.	Minot
Devine, J. L., Jr.	Minot
Devine, J. L., Sr.	Minot
Downing, W. M.	Minot
Durnin, W. G.	Westhope
Dyson, Ralph E.	Minot
Erenfeld, F. R.	Minot
Erenfeld, H. M.	Minot
Fischer, V. J.	Towner
Flath, M. G.	Stanley
Fulton, A. M.	Minot

Gammell, R. T.	Kenmare
Garrison, M. W.	Minot
Gerber, L. S.	Crosby
Goodman, Robert	Powers Lake
Greene, E. E.	Westhope
Halliday, D. J.	Kenmare
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Halverson, H. L.	Minot
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Hanson, Geo. C.	Minot
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Johnson, C. G.	Rugby
Johnson, J. A.	Bottineau
Johnson, O. W.	Rugby
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Kermott, Henry	Minot
Kermott, L. H.	Minot
Knudson, K. O.	Glenburn
Lampert, M. T.	Minot
Lemieux, Darie	Rolla
Malvey, Kenneth	Bottineau
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Buckingham, T. W.	Bismarck
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Quain, Fannie D.	Bismarck
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Vinge, Ralph	Beulah
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★Brown, G. F.	Grand Forks	Gammell, R. T.	Kenmare
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★Canterbury, E. A.	Grand Forks	Glaspel, G. W.	Grafton
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Carr, Andy M.	Minot	Graham, J. D.	Devils Lake
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Clayman, S. G.	San Haven	Gronvold, F. O.	Fargo
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Constans, G. M.	Bismarck	Gulioen, H. E.	Dickinson
Countryman, G. L.	Grafton	★Gumper, A. J.	Dickinson
Countryman, J. E.	Arch Cape, Ore.	Haagensen, E. C.	Grand Forks
Craise, O. S.	Towner	Halliday, D. J.	Kenmare
Craven, J. D.	Williston	Halverson, C. H.	Minot
Craven, J. P.	Williston	Halverson, H. L.	Minot
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Cuthbert, W. H.	Hillsboro	Hanson, G. C.	Minot
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Dailey, Walter C.	Grand Forks	Haugen, H.	Fargo
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DeCesare, F. A.	Fargo	Heilman, C. O.	Fargo
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DePuy, T. L.	Jamestown	★Henderson, R. W.	Bismarck
Devine, J. L.	Minot	Hetherington, J. E.	Grand Forks
★Devine, J. L., Jr.	Minot	Hetzler, A. E.	Mandan
★Dillard, J. R.	Fargo	Hill, F. J.	Bismarck
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Dochterman, L. B.	Williston	Horsman, A. T.	Devils Lake
Donker, A. E.	Carrington	★Hoskins, J. H.	Wahpeton
★Downing, W. M.	Minot	Hughes, B. J.	Rolla
Drew, G. F.	Devils Lake	Hunter, G. W.	Fargo
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★Fischer, V. J.	Towner	★Keller, E. T.	Rugby
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		Liebeler, W. A.	Grand Forks
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		Macdonald, A. W.	Valley City
		MacDonald, J. A.	Cando
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		Malvey, Kenneth	Bottineau
		Martinson, Lee	Minot
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		Neve, H. E.	Minot
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*These members in military service.

Montana Holds 66th Annual Meeting

At Butte, Montana, July 13 and 14, the Montana state medical association held its 66th annual convention. The subjects and featured speakers were: Foreign Bodies in Air and Food Passages, Dr. Harry L. Baum, Denver, Colorado; Experiment in the Revival of Organisms, a film, J. B. S. Haldane, commentator; Treatment of Osteomyelitis, Dr. John K. Colman, Butte; Diagnosis of Common Skin Diseases and Dermatological Therapeutics (2 addresses) Dr. Henry Michelson, professor of dermatology at University of Minnesota, Minneapolis; Traumatic Injuries of the Abdomen and Indication for and Experiences with Total Gastrectomy (2 addresses), Dr. John M. Waugh, abdominal surgeon at Mayo Clinic, Rochester, Minnesota; Erythroblastosis, Dr. Elna M. Howard, Miles City; Use of Radiation Therapy in some Benign Conditions, Dr. John H. Bridenbaugh, Billings; Surgical Indication in Gastric Lesions, Dr. C. L. Bourdeau, Missoula; The Management of Functional Ovarian Cysts, Dr. Earl L. Hall, Great Falls; Rosola Infantum and Rythema Infectiosum, Dr. Orville M. Moore, Helena; Medical Observations in South China with some notes on the health situation in the Japanese internment camps, Dr. Chester W. Lawson, Glasgow.

In addition to these Dr. John Newton, Glasgow, who was a medical missionary in the Sino-Japanese war, told something of that experience. The program committee was composed of Dr. T. F. Walker, secretary of the state association, Great Falls, Dr. M. A. Shillington, Glendive and Dr. Harold Gregg, Butte.

Principal speaker at the convention banquet held at Butte Country Club with Dr. Pat E. Kane, Butte, toastmaster, was Senator E. G. Toomey of Helena. Members of Silver Bow county medical society of which Dr. J. E. Garvey, Butte, is president and its auxiliary, president of which is Mrs. Harold Schwartz, were the hosts to the Montana meeting.

Elected to office were: Dr. J. C. Shields, Butte, president; Dr. S. A. Cooney, Helena, president-elect; Dr. Thomas B. Moore, Jr., Kalispell, vice president; Dr. R. F. Peterson, Butte, secretary-treasurer.

Directly preceding the meeting of the Montana state medical association the Montana Academy of Oto-Optometry held its 43rd semi-annual meeting. Speakers in this group included Dr. H. L. Baum, Denver, Colorado and Dr. Malcom C. Pfunder, Minneapolis.

A Suggested Therapeutic Procedure for the Treatment of Empyema by the Closed Method

A Preliminary Report

Earl E. Carpenter, M.D.†

Superior, Wisconsin

ALTHOUGH the open treatment of empyema is often necessary for cure, and is indeed recommended by many in all cases of empyema, it is felt that if the experience with closed treatment were more successful it would be used more prevalently since it presents obvious advantages. Not only is the open treatment more uncomfortable and more radical, but it often causes chronic sinuses in the chest wall that are painful and troublesome, and complicate future surgery such as thoracoplasty. Moreover, the open case at once becomes a "ditty one," a potential source of infection in a hospital.

We have, for a long time, been experimenting with different procedures in the closed treatment of empyema with results that have convinced us that there are advantages to be gained by our methods and that further study and work in this line of therapy is warranted. We long ago felt that the chronicity of the disease and its stubbornness to treatment are due to the heavy layer of pus-laden fibrin with its myriad bacteria that forms on the parietal and visceral pleurae. (These bacteria may be both specific and non-specific in character.) To wash out the empyema pocket is merely to remove the free pus, leaving intact the above mentioned deep layer, to act as a constant source of continued infection by the offending bacteria imprisoned in the fibro-exudate. We have felt, therefore, that the application of certain antiseptics or the sulfonamides to the outer surface of such a coating fails to reach the basic cause of chronicity, which lies deep in the substance of the puro-fibrinous layers.

The first problem that presents itself is the removal in some way of this infectious coating. A laboratory procedure gave us considerable experience in the handling of heavy purulent exudates. For the past several years we have been using the Petroff method of sputum concentration which involves the use of a wetting agent, "Tergitol B." Experience had taught us that inadequate amounts of wetting agent failed to liquify the heavy purulent exudate but that the gradual addition of "Tergitol B" accomplished the desired results admirably. Not only was the amount of wetting agent necessary directly proportionate to the amount and thickness of the exudate, but the time element proved also an important factor. The longer time the wetting agent was in contact the greater the liquification.

In working out our procedure clinically, Dakin's solution was first used. The dissolution of the exudate proceeded slowly but nevertheless some success was obtained in several stubborn cases. In seeking a better dissolving agent tetradeeyl sulfate was tried in conjunction with

azochloramide. We scrupulously washed the empyema pocket with saline followed by tetradeeyl azochloramide solution until all the pus was removed and the washings returned clear. This was an improvement but it did not fit into our theory, as developed by the above laboratory procedure, that the wetting agent should be left in contact with the fibro-purulent exudate which we were constantly fighting. Subsequently it was found that, as in vitro, the longer the solution was left in one empyema pocket the more dissolution of the purulent layer took place. Results obtained did not satisfy us, however, that we had yet found a satisfactorily effective procedure.

The next step was to incorporate a successful antiseptic which would kill the bacteria freed by this liquification from the fibro-purulent layer lining the empyema pocket. A series of different substances were used. After every alternate aspiration and washing, one to two grams of sulfanilamide were instilled into the empyema pocket. Thus there was some improvement in our technic, but the comparative insolubility of the sulfanilamide offered a handicap and a more soluble substance was sought. Sodium sulfadiazine proved to be the most satisfactory drug used but the results were still not as spectacular as could be hoped for.

On investigation it was learned that certain protein factors found in exudates inhibit sulphonamide action. It has been known and demonstrated by Schmelkes and Wyss that when peptones and p-aminobenzoic acid are present (and they usually are in fibro-purulent exudates) the sulfonamides are naturally inhibited. Oxidizing agents destroy these natural inhibitors of the sulfonamides and render the latter much more active. Azochloramide is such an oxidizing agent. Thus, with the wetting oxidizing-sulfa solution we now had a three-edged therapeutic agent; (1) our wetting agent which dissolves the fibro-purulent layer and allows the therapeutic agents to penetrate this layer, (2) an oxidizing (and bactericidal) agent to destroy the inhibitors (peptones and p-aminobenzoic acid) of the sulfonamide and (3) the specific action of the sulfonamides themselves on bacterial-flora. The results of this combination on *Staph. aureus* in vitro is given in the following:

POTENTIATION OF SULFANILAMIDE BY AZOCHLORAMIDE‡

Inoculum of <i>Staph. aureus</i>		2,000,000/ML.	
Concentration	MG%	Plate Counts	
Azochloramide	0.4	33,000,000	126,000,000
	0	93,000,000	34,000,000
Azochloramide	0.4	20	10,000
Inoculated control		120,000,000	140,000,000

The rationale of using this combination in empyema pockets seems therefore self-evident. To our personal knowledge it has never been used before.

† Schmelkes and Wyss.

‡ Superintendent and Medical Director, Middle River Sanatorium, Hawthorne, Wisconsin.

It seems apparent from our experience that the sulphonamides are not made more toxic nor their characteristics changed chemically in the combination, since none of our patients have presented untoward effects and the combination has been used with apparent good results. It was suggested by Dr. Louis Nezworski, resident at our hospital, that the sodium sulfadiazine be incorporated in the azochloramide-tetradecyl solution and allowed to remain in the empyema pocket until the next aspiration. Eighty grains of sodium sulfadiazine were mixed in 100 to 200 cc. of the wetting agent-oxidizing solution and after the final washing the entire amount of mixture was instilled into the empyema pocket and allowed to remain. This procedure was repeated two to three times per week depending somewhat on the reaction of the patient and the results obtained. The weight and the amounts of sodium sulfadiazine and the wetting agent solution are determined by the size and weight of the patient, his reaction to the agents used, and of course the concentration in the blood stream of the sulfa drug. So far, signs of overdosage have not occurred. Since the sodium tetradecyl azochloramide solution is practically non-toxic, as much as 300 cc. of this substance in conjunction with the desired sulphonamide has been left in the empyema pocket without untoward effect.

Since it is the practice in our hospital to proceed cautiously when testing clinically any drug used, we automatically have used the utmost care with these solutions, particularly the sulfadiazine, and with the patients upon whom the procedure is contemplated. Caution is always in order and urged during the course of treatment. Observation of blood pictures both white and red, and urine examinations should be constant. X-ray and fluoroscopic control should be had at all times. The checking of intrathoracic pressures is necessary and the sulfonamide estimations in the blood stream should be carried on as an indication of how much absorption has taken place.

We immediately felt that the results with this method were better than all previous procedures. Notable was the prompt drop of fevers and the apparent rapid dissolution of the puro-fibrinous layer as demonstrated by the following report.

Case F. B. (No. 893). White, female, housewife, age 36. Entered with a diagnosis of empyema, right. (Patient has had pneumothorax, right, for about three years, instilled 9-21-40.) Loss of weight 52 lbs. Patient looks ill, feels weak. This individual, a former patient in our hospital, had left under pneumothorax and had had resills while under private treatment up until the first part of September 1943. During that month she developed fluid and three weeks later entered a hospital for treatment. Her chest was aspirated and approximately 1000 cc. of clear fluid was obtained. With the preceding aspiration the fluid became cloudy, thick and turbulent. Massive sputum irrigations three times weekly for a period of about six weeks did not seem to help materially in clearing up the empyema. Staphylococci were found and it was decided to try penicillin. She was transferred to another hospital where she was given penicillin therapy for about four weeks. The staphylococci apparently disappeared and it was thought that because the empyema persisted it was possibly tuberculous in origin. After her discharge from the hospital of former residence the patient enjoyed a fever free period of a couple of weeks but thereafter the hyperpyrexia gradually returned so that for ten days previous to coming to us she had suffered fevers of 100° to 102°. Open drainage was then advocated but she wished to seek consultation at our institution because of her former residence here.

When admitted to this institution, Jan. 6, 1944, 50 cc. of thick almost gelatinous, grayish brown pus was aspirated. Pleural cavity was irrigated with normal saline and 50 cc. of sodium tetradecyl solution was instilled. Patient tolerated this very well, so the following morning 100 cc. of sodium tetradecyl solution was instilled.

Jan. 12 — 375 cc. of grayish, brownish pus was aspirated. Chest was irrigated with normal saline and 400 cc. of sodium tetradecyl solution was instilled. Pressures adjusted. Temperature 88.

Jan. 18 — 650 cc. of purulent fluid was aspirated. Chest was irrigated with normal saline and 450 cc. of sodium tetradecyl solution was instilled. Pressures adjusted. Temperature 98.6.

Jan. 26 — 650 cc. of purulent fluid was aspirated. Chest irrigated with normal saline and 450 cc. of sodium tetradecyl solution plus sodium sulfadiazine was instilled. Pressures adjusted. Temperature 98.4.

Feb. 1 — 600 cc. of brown, thin, watery fluid was aspirated. Chest was irrigated with normal saline and 500 cc. of sodium tetradecyl solution and sulphadiazine solution was instilled. Temperature 98.2.

Feb. 8 — 600 cc. of clear yellow fluid was aspirated. Pressures adjusted. Treatment has been carried on at approximately weekly intervals and the fluid has been clear to date. Temperature 98.2.

Last aspiration, April 19, 1944. Fluid clear. 250 cc. Pressures adjusted. Temperature 98.4. No acid-fast or secondary pathogens found in sputum or culture; these were probably killed by the antisepsis, but as dubious the organisms were harbored in the deep exudate. As fevers were discontinued before entrance (100° to 102°) active infection was obvious. The patient states, very definitely, that she did not begin to feel well until the fluid began to clear, the first part of February.

In this particular case the history reveals the marked stubbornness of chronic empyema treatment in the hands of doctors of unimpeachable medical skill, even when penicillin was used. In such a case there is always the possibility that although previous treatment had not been successful it may have been of contributory therapeutic benefit. However, the failure of closed treatment in this case had been at least tacitly admitted or open drainage or thoracoplasty would not have been advocated.

It may be of interest to note that we attempted to activate the sulfa drugs by withdrawing 100 cc. of blood from the patient, and extracting the serum, into which we introduced the sodium sulfadiazine and allowed the mixture to incubate for two hours at the usual incubator temperatures. When this mixture was introduced into the empyema pocket again we noted a spectacular and more prolonged drop in the fever course, and a definite improvement in the patient's general condition. Whether or not this will prove to be more valuable than we now know, particularly in attacking the acute empyema, has yet to be demonstrated, but it is offered as a possible procedure. We must always bear in mind, of course, the individual's possible sensitivity to drugs, but this can be pre-determined and tolerance built up before the instillation of the sulfa drug. In any case, should untoward effects result, the mixture can be removed by washing with saline and usual procedures taken to combat the effects of the sulfa drug. So far this unpleasant complication has not occurred, although we admit that extraordinary precautions have been used to reduce to a minimum any element of danger to the patient.

The technic may be summarized as follows: The empyema pocket is washed scrupulously clean with saline. A 17-gauge needle is perforated on the sides with a dental drill using a carbondum disk to cut the fenestrations. This has proved an excellent instrument to use in the procedure. It is not so large or traumatic as a trocar and yet the four or five fenestrations permit the withdrawal of pus more readily than is possible through the ordinary needle's lumen. Should the pus be too thick, enough is withdrawn to allow the re-instillation of 50 cc to 100 cc. of sodium tetradecyl sulphate azochloramide solution. By the next day this pus should begin to be thin enough to permit easy removal. Once the pus is completely removed and the empyema space washed clean, 100 cc to 300 cc of sodium tetradecyl-azochloramide solution plus the desired sulfonamide is instilled and allowed to remain in the cleansed empyema space. In our tuberculous empyemas we are incorporating diazone instead of sodium sulfadiazine with encouraging results.

Although only one case history has been here given, we have treated or are treating six other cases with results that we feel certain are superior to former methods. Since, however, these are not yet completed, we do not feel justified in reporting our results in these cases.

This is frankly a preliminary report of a special procedure and our results so far. Like all preliminary reports the writer has presented his experiment rather hesitantly. It is hoped that our suggestions will be tried by others working in the field of chest diseases and that a large number of cases may be evaluated to confirm or disprove the worth of these suggestions.

Counterirritation

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New York City

PATHOLOGICAL PHYSIOLOGY OF COUNTERIRRITATION

HERE is no older therapy in the dentist's and physician's armamentarium than the relief of pain by counterirritation. Although early attempts often resulted in serious burns, scars and even mutilations from the injudicious use of severe caustics, chemicals and heat, the professional world has long since abandoned damaging irritants. Early explanations of counterirritation smacked of sorcery and demons, for the pronounced purpose was to withdraw evils or poisons from deep within the body to the surface where they could be eliminated or destroyed. But what has withstood the test of time is the observation that counterirritation applied locally often relieves pain arising from neighboring or deep-seated lesions. What was at first an empirical procedure is now rationally justified.

Visceral pain is often manifest by cutaneous pain, the so-called "referred pain." This is due to the visceral stimulation of a nerve from a spinal segment whose normal pain reception is only concerned with a definite cutaneous segment. The misinterpretation of the pain, and the actual physiologic disturbances in the cutaneous segment to which pain is "referred," form the basis of the conception of "referred pain." Counterirritation is, indeed, the opposite of "referred pain," since it involves the stimulation of cutaneous sensory nerves to bring about a physiologic response in the more deeply-seated tissues or organs. Irritation of the skin may relieve inflammation in deeper-seated structures, diminishing the pain, possibly the congestion, and perhaps leading to an earlier and more conservative termination (Sollman, 1942). Many investigators feel that counterirritation affects the adjacent or neighboring tissues more than deep-seated organs. Vasomotor reflexes, which are elicited by counterirritation in "reversing referred pain," explains the generally known fact that counterirritation is most effective when applied at a definite place for each internal inflammation. Inflammation is often inseparable from the processes of immunity which limit and combat the agents which produce inflammatory changes. Counterirritants produce tissue changes of a nature similar to the inflammatory reactions themselves and are thus theoretically able to augment local immunity. As a matter of practical consideration, different irritants varying in their intensity can produce changes from the mildest hyperemia to necrosis. There is no difficulty in concocting a potent counterirritant which can be shown to manifest inflammatory and vasomotor reactions, but while the ideal preparation must be sufficiently strong and act for a period of time long enough to augment or summate favorable inflammatory changes and produce a definite sensory reaction, it must be mild enough so that no tissue destruction is effected.

The physiologic effects of irritants have been amply demonstrated upon normal organs and deep tissues, but

experimental studies of counterirritants in the presence of previously induced and controlled inflammatory changes are difficult to find; i. e., the pathological physiology of counterirritation and not irritation. It is the purpose of this paper to present the current conception of the pathological physiology of counterirritation and inflammation. The therapeutic approach of pain from the approximate anatomical site of pain and not the higher cerebral centers is worthy of serious consideration.

PRESENT STATUS OF COUNTERIRRITATION

In actual practice, the use of counterirritants often relieves discomfort, although it is doubtful whether these exert any profound effect upon the course of visceral disease (Barr, 1940). One should not assume otherwise. While, for example, the cutaneous application of counterirritation in the form of heat, cold or drugs (poultices, etc.) may bring some relief of pain, for example, in acute abdominal or intra-thoracic disease, there is absolutely no convincing evidence that the fundamental course of deep-seated infection is altered.

Wayne (1940) reported that counterirritation was of considerable value in superficial lesions, and that counterirritant drugs produce essentially the same effect as heat. Expressing the belief that the reflex effect in deep-seated organs was a simple hyperemia, Wayne believed it might not have any beneficial effect on the visceral disease processes.

The application of counterirritants for somewhat juxtaposed lesions is, perhaps, different. Local heat or counterirritant drugs may abort or favorably affect an inflammatory process in the immediate vicinity of the counterirritation. One need only cite, as examples localized cellulitis and abscesses. Relief of pain or discomfort and the effect upon inflammatory processes is probably mediated largely through the nervous system with resultant vasomotor changes. However, Gammon and Starr (1941) concluded from their experimental work that the relief of pain by counterirritation is not due to circulatory changes, *per se*.

Much of the clinical literature is contradictory because the relief of pain is a subjective phenomenon which is difficult to express quantitatively in terms which can be faithfully reproduced or compared by another investigator. Add to this the fact that a variety of counterirritants are employed clinically, and that they are often merely adjuncts to other therapy administered simultaneously. An interesting observation in this regard is that of Hardy, Wolff and Goodell (1940) who devised a simple method for the measurement of pain and found that the threshold for pain can be raised by 35 per cent if a second painful stimulus is simultaneously used, even if at a distant focus.

Kaletsky (1942) extensively reviewed the literature of counterirritation and after considering heliotherapy, ther-

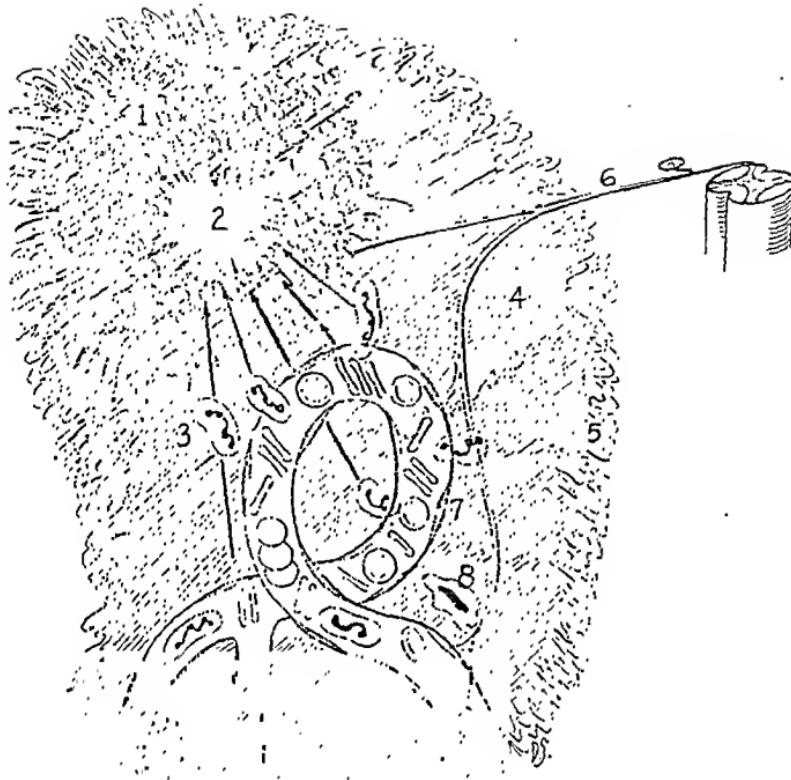


Fig. 1

motherapy, cautery, tubefacients, epistastics, escharotics, purifacients, cantharidin, iodine, mustard, silver nitrate, turpentine and various mild counterirritants, concluded that: (1) most of the published material is based upon clinical observations, not meticulous scientific investigation; (2) the actual mechanism of counterirritation is not thoroughly understood or even agreed upon; (3) counterirritation undoubtedly has some therapeutic value; (4) the hyperemia produced creates to some extent a favorable response which apparently controls pain and has a tendency to reduce the severity of the original condition.

Fortunately, there are truly critical and adequately controlled studies of inflammation and the vasoconstrictor system. For our purpose we need not consider the clinical side other than to accept the observation of relief of pain under certain conditions. We are then free to search in experimental work for a rational explanation.

INFLAMMATION

Inflammation is defined by Bell (1942) as the local defensive reaction which occurs when injurious agents penetrate the tissues. Systemic defensive mechanisms such as leucocytosis, fever, and the formation of immune

bodies are not considered a part of the inflammatory process. The purpose of this defensive reaction, he points out, is to destroy or wall off the irritant, to neutralize any toxic substances, and remove necrotic debris. Although the phenomena of repair are not strictly a part of inflammation, they are often difficult to distinguish from it. The pathologic picture includes the passage of fluid out of the capillaries (serous exudate or edema), escape of leucocytes into the tissue (cellular exudate), migration of phagocytic cells from adjacent tissues, and proliferation of fixed tissue cells and a fibroblastic response. The inflammatory process itself tends to bring about its own remedy in the phagocytosis and neutralization of toxic substances. Pain is due to the irritation of sensory nerves by tension of swollen tissues and the direct action of toxic substances. To combat the pain at the site of origin would, therefore, involve reduction in serous exudate and removal or neutralization of toxic substances. In the early course of inflammation, when pain is most intense, the inflammatory process encourages the painful serous exudate and congestion, while heat or other local therapy may help overcome congestion and assist in bringing more leucocytes to the local lesion.

The nervous system does not influence the immediate inflammatory process to a great extent, although axon reflexes may be of great importance. Vasomotor response to sympathetic (autonomic) nervous impulses is important, for when the sympathetic nerves are sectioned, congestion is more pronounced (Bell). The elimination of the sympathetic vasoconstriction following unilateral sympathetic ganglionectomy in the rabbit results in more rapid healing of lesions on the operated as compared to the unoperated side (Danilewski, 1883).

Valy Menkin (1938), in his comprehensive review of inflammation, points out that the manifestations of inflammation tend to develop along a uniform pattern irrespective of the irritant. Foreign substances, viable or non-viable, in contact with normal tissue, induce an inflammatory reaction, the intensity of which may vary from a barely discernible hyperemia to an intense suppurative process. Menkin defines this response as a complex vascular, lymphatic, and local tissue reaction whereby the deleterious agents tend to be localized and ultimately destroyed. The inflammatory reaction may be truly considered as an immunological mechanism of definite significance. (Fig. 1).

The early increased intracapillary pressure and increased capillary permeability favor the formation of edema or plasma exudate. Following an initial vasoconstriction, there is very soon a local vasodilatation and an increase in the actual number of functioning capillaries (Menkin, 1938). In agreement with Menkin's work, Landis (1931) reported that capillary dilatation in hyperemia or inflammation is accompanied by an increased capillary pressure. Landis was able to produce arteriolar vasodilatation and increase capillary pressure by irritating the skin of the web of a frog's foot with silver nitrate and thereby stimulating axon reflexes.

Menkin (1936) found that various types of inflammatory exudates induced in normal dogs and rabbits by a chemical irritant or by a burn, would induce a prompt increase in capillary permeability as evidenced by the fact that when trypan blue dye was injected intravenously, it accumulated in the involved areas, seeping through the capillaries. Although earlier work suggested that this permeability promoting substance might be histamine or an hypothetical histamine-like substance called "H" substance, Menkin was able to isolate the active permeability-promoting factor and show that it was not histamine or the "H" substance. The active factor which he isolated was called "Leucotaxine", because of its chemotactic property of attracting leucocytes. Its liberation was considered to be related to the interference with normal protein catabolism (Menkin, 1941). Despite the report of Silva and Dragstedt (1940) that histamine liberation is responsible for the escape of trypan blue in tissue, the work of Menkin is most widely accepted.

The increased permeability permits the plasma proteins, including fibrinogen, to escape into the inflamed tissues with the early formation of a fibrin network which circumscribes the irritant. Vigorous manipulation of acutely infected tissue may break down this fibrin barrier and allow the dissemination of bacteria. The fixation at the site of inflammation is primarily due to me-

chanical obstruction caused by the fibrin network and the occlusion of lymphatic vessels (Menkin, 1938). The cytologic changes can be closely correlated with local changes in hydrogen ion concentration (pH).

Although the formation of antibodies is not strictly a part of inflammation, there is some evidence that the action of antibodies brought in the serum to the site of inflammation are of considerable importance in localizing a bacterial inflammation. There may be a local formation of immune bodies (Cannon).

Hudack and McMaster (1933) clearly demonstrated that in the initial stage of an acute inflammation, there is an increased permeability of the lymphatics and as others have also shown, a parallel increase in lymph flow and pressure.

VASOMOTOR SYSTEM AND COUNTERIRRITATION

The vascular bed is under the control of the sympathetic nervous system. To the blood vessels go vasoconstrictor and vasodilator nerves. The vasomotor center is located in the floor of the fourth ventricle of the medulla oblongata (Brushteyn, 1933), while the highest centers for the vasomotor system are probably in the cerebral cortex and hypothalamus. Vasomotor reflexes can be elicited by stimulation of practically any efferent somatic or visceral nerve. Normally the vessels possess a certain tone due to vasoconstrictor action. All of the vasoconstrictor sympathetic fibers arise from the group of cells in the lateral horn of the spinal cord from the first thoracic to the second or third lumbar segments, and all of the arterioles of the body are supplied from these segments. The vasoconstrictor fibers to the head and neck arise from the first two thoracic segments, pass to the superior cervical ganglion from which plexuses of fibers investing blood vessels or accompanying nerves reach the most superficial arterioles (Best and Taylor, 1943). The cephalic region is probably without afferent sympathetic fibers. The vasoconstrictor fibers probably act through the liberation of an adrenalin-like substance at their nerve endings. (Miller, 1942).

The vasodilator fibers have origin from more diverse source than the vasoconstrictor fibers, probably arising in the parasympathetic cranial and possibly the thoracolumbar segments. The fibers to the head course through the seventh, ninth and tenth cranial nerves and the cervical sympathetics.

In 1852, Claude Bernard observed that the stimulation of the cervical sympathetic nerves constricted the blood vessels of a rabbit's ear. Dastre and Morat (1880) observed flushing of the buccal mucosa upon stimulation of the cervical sympathetics, and this was confirmed by Langley and Anderson (1894), Carlson (1907), and by others.

Bruce (1913) showed that superficial vasodilatation resulted from cutaneous or conjunctival stimulation and offered convincing evidence that these reactions depended upon axon reflexes. The axon reflex—sometimes called the Sokovnin reflex—is often cited as an example of an autonomic reflex, although strictly speaking it is not a reflex since no nerve cell is involved and the entire "reflex" occurs outside the spinal cord. In man, this is

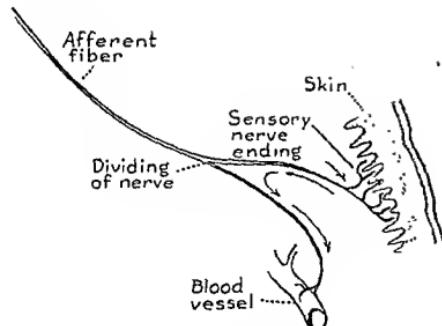


Fig. 2

usually demonstrated as a localized reaction in the skin. The most familiar type of axon reflex is that which involves a sensory nerve fiber through which vasodilatation is brought about, (Fig. 2). The afferent and efferent limbs of the axon reflex are formed by the branching of a single nerve fiber. Stimulation of one branch produces an impulse which travels centrally to the point of division where it is reflected down the other branch to an effector organ. In the second arm of the "reflex", the impulse travels in the efferent direction in a normally afferent nerve.

Bruce found that dilatation of the conjunctival blood vessels from the application of mustard oil irritant could be prevented if the sensory nerve endings are first paralyzed by cocaine or alypin, (which does not locally affect the blood vessels). If the irritant is applied shortly after division of the fifth nerve, which also renders the conjunctiva insensible, the usual inflammatory reaction occurs. However, if the sensory fiber has degenerated, the irritant does not produce the reaction. This local reaction explains the close association of the transmission of pain and vasodilator effects.

The vasodilator reflexes are dependent upon the integrity of the sensory nerve fibers. Inflammatory reactions in rabbits anesthetized with alcohol or ether do not cause the usual edema and hyperemia as in the normal rabbit (Cressman and Rigdon, 1939).

Woolard and Phillip (1932) blocked peripheral nerves with local anesthetics and found that the cutaneous hyperemia which follows the analgesia corresponded with the area of cutaneous anesthesia, and, therefore, the peripheral distribution of the sympathetic fibers corresponds with the sensory fibers. Richard's recent work (1943) on wartime injuries of peripheral nerves, revealed essentially the same. In addition, he noted that after division of a peripheral nerve, the vasoconstrictor state of the denervated area passed through two phases; an initial vasodilation due to the interruption of the sympathetic fibers (warm phase), and a second and permanent cold phase in which the temperature of the area approximated the environment.

The capillaries, which, unlike the arterioles, do not possess muscular walls are nevertheless also under sympathetic control. Beecher (1936) studied capillary changes

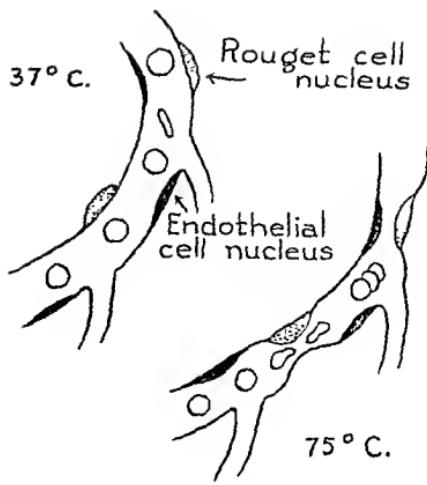


Fig. 3

in the ear of intact unanesthetized rabbits by a microscopic tissue chamber technic. He showed that both the Rouget and the endothelial cells, the two structural elements of the capillary wall, respond to several types of stimulation by reducing or stopping the capillary circulation. Rouget cells act by constricting the capillaries, the endothelial nuclei by swelling and blocking the lumen. This activity can be swift. Stimuli which were found to produce this effect were local cooling, general body cooling, induction shocks, anoxemia, fright, pain and epinephrin. The capillary endothelium and the Rouget cells were shown to be under the influence of the sympathetic nervous system. Opening of the capillaries with heat required only one second; closing with cold, usually five or six seconds (Fig. 3).

Wilkins (1942) has summarized the literature on the sympathetic control of the peripheral vascular system with special consideration of the circulation of the limbs and vascular diseases of the extremities.

The sensations of temperature induced by physical changes are important since they are associated with reflex changes. When any part of a skin surface is exposed to temperature changes, there occurs a vasodilation in response to warmth, and a vasoconstriction to cold, Bazett (1927) found a rise in temperature caused local dilatation of the capillaries and a resultant capillary pulsation which is probably the result of arterial dilatation—a vasodilation which can be demonstrated by an increase in the volume of the part of the body warmed and by a more rapid circulation rate. To some extent, these effects can be produced by physical or chemical means. Local application of heat increases phagocytic and local metabolic activity (Krusen, 1941).

Of importance in the vasomotor problem is the anatomy and physiology of the vascular bed with which one is concerned. The fine capillary structure of the skin (Grigotowa, 1932) and buccal or lip mucosa already

have been extensively studied (Fisher, 1933), although the gingival circulation has been somewhat neglected. Landis (1936) presented a general review of vascular physiology and clinical medicine and more recently, Sculphin, de Takats, von Dellen and Marcus (1942) have collectively reviewed vascular diseases with consideration of the more fundamental pathological physiology.

Counterirritants are applied to gingival, or buccal mucosa with the purpose of stimulating sensory nerve endings and eliciting directly or through axon reflexes vaso-motor responses in neighboring and deeper structures. In addition to vaso-motor responses, irritants may produce inflammatory changes of a beneficial nature (see Fig. 1). Painful inflammatory lesions, discomfort following traumatic procedures, minor irritations and neuralgias may be benefited by the therapy of local counterirritation.

The nerves of the jaw, teeth and subcutaneous tissues as well as mucosal surfaces are branches of the fifth (trigeminal) nerve. A careful study of the nerve endings of the teeth by Tiegs (1932) revealed termination of fine filamentous branches under the dentine by end organs on the odontoblast processes. The blood vessels of the pulp (Sellman, 1939) of the enamel organ (Jump, 1938) and the gums (Pelzer, 1940) are probably all interrelated. Bach and Redisch (1931, 1932) have interestingly employed capillarioscopy in the diagnosis of pyorrhoea alveolaris.

Moore, Moore and Singleton (1934) claimed that the chemical changes such as the accumulation of acids in inflamed areas, was of more importance in causing pain than tissue tension. They believed that the pain which accompanied ischemia resulted mainly from the local accumulation of acid metabolites. Active hyperemia may help remove these products.

SUMMARY

Counterirritation is a valuable therapeutic procedure when indicated.

Counterirritation augments the local mechanisms of inflammation and immunity, and while it may not influence the course of visceral lesions, appears to favorably affect the more superficial lesions.

Counterirritation acts physiologically through the medium of the axon reflex with resultant sympathetic vaso-motor changes, and to some extent through subjective sensory effect.

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News-Letter

of the American Student Health Association

Philadelphia Plan Increases Treatment of Venereal Diseases by Private Practitioners. The publication and distribution of the "Bulletin of Physicians in Philadelphia who will Accept for Examination and Treatment in Private Practice Patients with Gonorrhea and Syphilis" has resulted in:

(a) "An orderly and controlled redistribution of patients who are public health problems."

(b) "An increased participation in the (venereal disease control) program by the private physician."

There has been a "44 percent increase in the number of physicians known to be caring for gonorrhea and syphilis patients in private practice as well as an increase in the average number of patients under the care of a single physician at any one time."

Smallpox Incidence in United States at New Low.

The May, 1944 issue of the Statistical Bulletin of the Metropolitan Life Insurance Company reports that in 1943 there were only 789 cases of smallpox with less than 10 deaths in the entire U. S. This represents a 12 percent decrease from the previous low mark of 900 cases in 1942.

Nine states and the District of Columbia reported no smallpox cases in 1943. More than one half of all cases in the country were reported from four states: Indiana (129); Ohio (118); Texas (86); and Illinois (68).

Vaccine Inactivated by Ultra-violet Light. Levinson, Milzer, Shaughnessy, Neal and Oppenheimer (J.A.M.A., June 24, 1944) report the production of potent vaccines of *Escherichia coli*, *Enterobacter typhosa* (strain 58), *Salmonella enteritidis*, *Staphylococcus aureus*, *Streptococcus viridans*, and *Diplococcus pneumoniae* (Type 1) with inactivation by means of ultra-violet light.

Suspensions of these organisms, containing 1 billion organisms per cc., in continuously flowing thin films (less than 1 mm.) are exposed to the rays of a newly developed lamp which is a powerful source of both total and short-wave (below 2,000 angstrom units in length) ultra-violet rays. Complete killing of these organisms is accomplished in 0.17 to 0.33 second. Successful results were also reported for rabies virus vaccine (irradiated 0.17 to 0.33 second) and for St. Louis encephalitis virus (irradiated 0.34 to 0.66 second).

The Natural Course of Poliomyelitis. The widespread publicity given the "Kenny Treatment" of poliomyelitis has aroused interest in the general question as to the natural course of the disease in the absence of that treatment. Mary Sherman (J.A.M.A., May 13, 1944) provides an answer to that question in 70 cases which except for supportive treatment were permitted to run their natural course. The results were as follows:

(a) 8.6 percent died.

(b) 10.0 percent have enough residual weakness to require braces or future surgery.

(c) 8.6 percent have functionally significant weakness

which does not require further therapy and which does not constitute a handicap to a normal life.

(d) 72.8 percent have no residual weakness or such slight weakness that it is barely detectable.

(e) The average hospital stay excluding the fatal cases but including readmissions for supervised physical activity, was 17.9 days.

Moderate Doses of Sulfadiazine Have No Measurable Effect on Coordination and Reaction Time of Young Men. Because of the widespread use of sulfadiazine to control streptococcal and meningococcal infections the question of the effect of this drug on coordination and reaction time becomes of immediate importance in military life and in accident control work.

Price and Pedulla (J.A.M.A., May 13, 1944) report that in 90 healthy young men 19 grams of sulfadiazine given 1 gram every 4 hours after an initial dose of 2 grams, produced no measurable effect on the coordination and reaction time.

A special apparatus which simulated actual working conditions was used to compare the treated group with the control group. Eye-hand coordination and reaction times were recorded by an electric clock. Tests were made before therapy, during therapy and 7 days after the administration of the drug was discontinued.

Time Required for Reliable Registration by Oral Thermometers. De Nosaquo, Kerlan, Knudsen and Klumpp (Jour. of Lab. & Clin. Med., Feb. 1944) after study of over 1,000 clinical thermometers from various parts of the U. S. conclude:

(1) That only 800 of the 1,000 thermometers examined were found to meet the requirements and tests specified by the Bureau of Standards.

(2) The character and use of the mercury column under clinical conditions is different from that under laboratory conditions.

(3) The markings on thermometers "1 minute", "½ minute" and "60 seconds" had no significance since all required about the same length of time for the instrument to reach equilibrium.

(4) Three minutes should be the minimum length of time allotted for an oral thermometer to reach equilibrium under ordinary conditions of use.

Results of Prophylactic Immunization Against Whooping Cough. In view of the discrepancies between previous reports, the report of Dungal, Thoroddsen and Agustsson (J.A.M.A., May 20, 1944) is of considerable interest. These workers in Iceland used a vaccine standardized at 8,000 million organisms per cc. and recommended an initial injection of 0.5 cc. followed at intervals of 4 to 7 days by 3 injections of 1 cc. each. Each child received 28,000 million organisms in the course of 12 to 20 days. Approximately 5,000 children were vaccinated and of these 888 were followed up and reported upon, of these only 770 were fully vaccinated. The results were as follows:

Among 770 children between 0 and 8 years fully vaccinated against whooping cough.	Among 122 unvaccinated controls.
Got no pertussis	28.3%
Got mild pertussis	49.5
Got medium pertussis	16.9
Got grave pertussis	5.3
	4.9%
	49.2
	34.4
	21.5

Toxicity of Boric Acid. Evidence has been accumulated at the Naval Medical Research Institute that indicates that boric acid applied either in the form of an ointment or a saturated solution to extensive wounds or burns is absorbed and acts as a cumulative poison. Petrolatum is therefore preferable to boric acid ointment for application to extensive burns.

Acute Infectious Lymphocytosis. Carl H. Smith (J.A.M.A., June 3, 1944) reports four more cases of this condition to add to five others he has observed in various hospitals of N.Y.C. within the past two years. The outstanding characteristics of the disease are:

(1) A relative and absolute lymphocytosis due to an increase of normal small lymphocytes and persisting 3 to 5 weeks.

(2) Rather marked communicability with a possible incubation period of 12 to 21 days.

(3) Clinical signs and symptoms may include those of an upper respiratory infection, vomiting, fever, or abdominal symptoms. Symptoms may be so mild as to escape attention.

(4) The lymphadenopathy, palpable spleen and positive heterophile agglutination reaction often found in infectious mononucleosis, are uniformly lacking in this disease.

(5) The disease is without complications so far as has been determined.

Nutritive Value of Canned or Dehydrated Meats. Rice and Robinson (A.J.P.H. of June, 1944) as the result of their studies conclude as follows:

1. Canning or dehydration of meat does not markedly reduce its nutritive quality; of the changes that do take place the greatest changes are in the thiamin and pantothenic acid potencies.

2. During storage of processed meat at temperatures up to 99° F. there is little or no loss of niacin, riboflavin, or pantothenic acid over a period of 219 days; thiamin,

however, decreases more rapidly, showing some loss at 80° F. and in canned pork after 293 days a loss of 48 percent.

3. Dehydrated pork after 219 days at 80° F. retains only 29 percent of its thiamin, while at higher temperatures the destruction of thiamin is practically complete.

Typhoid Fever Epidemic from Cheese. In Public Health Reports (April 21, 1944 issue) there is reported an epidemic of 225 proved cases of typhoid fever with 12 deaths, all as the result of eating green cheese made from typhoid infected unpasteurized milk. The cases were scattered over 18 counties in the northern part of Indiana. During December 1943, unpasteurized milk was used in making cheese by a plant in the central part of Indiana. Typhoid organisms were apparently present in that milk and consequently in the manufactured cheese. Instead of aging the cheese, as is the usual rule, the manufacturer sold it while green. If the cheese had been permitted to age before being put on the market it is suggested that the typhoid organisms would have died a natural death and would not have been able to cause infection. It is assumed that the typhoid organisms got into the milk from a farmer or dairyman who was a carrier.

Water-borne Tularemia in Western Canada. Bow and Brown (Can. Med. Assoc. Jour., January 1944) again call attention to the fact first pointed out in Russia by Karpoff and Antonoff in 1936, that tularemia in sheep, rabbits, ground squirrels, field mice, beaver, etc. may result in infection of water supplies and thus in transfer of the infection to humans.

Metatarsalgia. Baker and Kuhn (Southern Med. Jour., March 1944) report curing 14 cases of metatarsalgia by removing tumors of the fourth plantar digital nerve lying in the web space between the third and fourth toes. This confirms the operative results reported by Betts and by McElvenny and apparently disproves Morton's hypotheses as to the condition. As to why or how repeated trauma brings about the condition is not clear but it appears to be a degenerative fibrosis of the nerve with neuromatous proliferation.

Changes in Mortality 1900 - 1940. An editorial in the June 1944 issue of the A.J.P.H. includes the following table on communicable disease in the U. S.:

CHANGES IN MORTALITY

1900 - 1940

	Death rate per 100,000	Percent Reduction	Actual Deaths 1940	Deaths which would have occurred in 1940 at 1900 rates	Number of lives saved per year
	1900	1940			
Typhoid and paratyphoid fevers	35.9	1.1	97	1,443	47,173
Diphtheria	43.3	1.1	97	1,457	56,896
Diarrhea and enteritis	133.2	10.3	92	13,573	175,025
Measles, scarlet fever and whooping cough	34.8	3.2	91	4,300	45,727
Tuberculosis	201.2	45.9	77	60,428	264,377
Pneumonia and Influenza	180.5	70.3	61	92,525	237,177
All other causes	1,126.1	944.5	16	1,243,543	1,479,695
					236,152

(Continued on thirteenth page following)



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POST-WAR EFFECTS OF ACCELERATED MEDICAL PROGRAM

Never has medical education been confronted by so many complex problems as now.

It is generally conceded that the evaluation of a profession should be based upon the relative responsibility involved in its practice, and because medicine deals with life and death it heads the list. The appraisal of a profession by its own members is expressed by the standards they fix for themselves. Through the effort of enlightened members to advance the cultural, educational and practical standards of medicine in this twentieth century a premedical course was established, the regular curriculum lengthened and a full year of internship in an acceptable hospital required before the degree of doctor of medicine was conferred. Basic science and state board examinations had to be passed, and even then many take time out every year to attend clinics and post-graduate schools.

After all this constructive work, the exigencies of war thrust upon the medical schools the necessity of a drastic revision of their curricula to conform to an acceleration program that would speed up the supply of medical men in the armed forces. When the young medical officers who were compelled to take this hurried and somewhat abbreviated course return, there will be a period of social and economic adjustment of no small magnitude. There will be at first a reduced student enrollment as medical schools decelerate but this will not leave the teaching body idle. Schools and affiliated hospitals will be called upon to assist returning physicians to make up for their deficiencies in both the medical sciences and the clinical fields. We have full confidence that the same constructive forces that have cherished high standards for medical education in the past foresee now and plan to meet these needs.

A.E.H.

NORTH DAKOTA MEDICINE LOOKS AHEAD

Each member of the North Dakota State Medical Association is urged to read carefully this issue containing the transactions of the 57th annual session since it represents the efforts of many members to promote the public health in North Dakota and to elevate the professional and economic standards of our profession.

A study of the transactions reveals a deep concern with the future of medicine in the postwar period. Most students of the problem agree that some change is inevitable but there is disagreement over the character and extent of the change. The great majority of North Dakota physicians are committed, it is believed, to any program which will provide more and better medical care to all citizens. But this same majority is convinced that such a program, to be successful, must preserve the principles of free enterprise and free choice of physician. Bureaucratic control of the medical profession, no matter how accomplished, will inevitably result in the deterioration of the standard of medical practice in our country. North Dakota physicians will fight any plan which threatens to jeopardize this standard. (See "News Items").

Postwar planning for anything and everything is popular these days. Much of it seems to be directed from Washington. Many agencies, federal and state, assert that medical care is inadequate at present, and that something should be done about it. Most of them forget that fully one-third of America's physicians are in the armed services, and that the unprecedented economic prosperity and scarcity of goods during the war has caused people to seek and demand medical attention for conditions, too often of a minor nature, which they would disregard in ordinary times. The reformers forget that fifty thousand physicians will return to private practice when the war is over. They also neglect to consider the basic truth that a prosperous people, including labor, agriculture and the white collared class, want to choose their own physicians and hospitals and are always willing to pay a reasonable price for the services rendered.

In its plans for the postwar period, the North Dakota state medical association directs its attention to three problems. First, the return of North Dakota physicians in the service to their former locations. Second, the raising of medical practice in the state to higher levels by the encouragement of postgraduate study and refresher courses. Third, getting the patient to the physician. The latter involves education of the public to the value of medical service, the transportation of patients to centers for diagnosis and treatment, and a sound economy which will permit individuals to pay for the services rendered. Prepaid, voluntary hospital and medical service insurance plans will assist materially in this respect, and the Association is now studying the possibility of sponsoring a prepaid medical insurance plan which will be sound and workable.

L.W.L.

TREATMENT OF FLUID AND PUS IN THE PLEURAL CAVITY

Dr. Carpenter's paper in this issue on the treatment of empyema is an extremely significant one.

Fluid or pus in the pleural cavity, whether accompanied by spontaneous or artificial pneumothorax, is a condition for serious consideration. When only clear fluid is present there is always an underlying cause which may be serious. Fluid in sufficient quantity to obstruct the view of the lung on x-ray film inspection should be removed in one or two sittings immediately after which x-ray film inspection should be made of the chest to determine whether any gross lesion exists in the lung. If such a lesion is found and is proved to be tuberculous, the physician can promptly institute artificial pneumothorax and thus continue the collapse of the lung which nature has begun. However, if this opportunity is allowed to pass as the fluid absorbs, the visceral and parietal layers of pleura become adherent and when the lesion is then visualized the pleural space is obliterated, thus making a simple and effective form of treatment impossible. Again, a bronchogenic carcinoma may be present, and if one waits for the fluid to absorb before detecting it there is strong likelihood that it will have metastasized, thus rendering lobectomy or total pneumonectomy useless.

Pus which accumulates in the pleural cavity in the course of artificial pneumothorax treatment may be due to the tubercle bacillus or to any one of the pyogenic organisms frequently found in the bronchial tree and particularly in lung lesions. Nontuberculous empyema in pneumothorax has been one of the most serious complications. Formerly the organisms were thought to be transmitted through the needle to the pleural cavity. However, inspection with the thoracoscope and the use of methylene blue introduced directly into the pleural cavity have shown that a broncho-pleural fistula nearly always constitutes the source of the infection. The subsequent and ultimate treatment of the empyema is dependent largely upon the size of the fistula and whether it closes spontaneously. Small fistulae usually close in a short time but larger ones remain open and continue to admit pyogenic organisms to the pleural cavity. In such cases it is often necessary to close the fistula by one of the surgical procedures before one can hope to effect a cure of the empyema. However, in those cases in which only a small fistula is present and which closes within a short time as indicated by failure of the patient to expectorate methylene blue introduced into the empyema cavity, until recently no specific method of treatment has been available. Most cases were aspirated and irrigated frequently with various solutions. In the occasional one the pyogenic organisms would disappear but in the majority the physician waited until the empyema became chronic and then recommended thoracoplasty in order to continue collapse of the diseased lung to close the empyema cavity.

Carpenter in this issue of the JOURNAL-LANCET describes a method which he has devised for using the sulfonamides directly in the empyema cavity. The rationale of his treatment is obvious. Unless the drug reaches the organisms the futility of its administration is clear. The empyema cavity should be made as clean as possible. Ordinary aspiration and irrigation do not always accomplish this result, but Carpenter's method should be

satisfactory because he removes the heavy layers of pus-laden fibrin with its large bacterial content from the parietal and visceral pleurae. By ordinary aspiration this remains intact and only the free pus is removed from the pleural cavity. He then introduces the sulfonamide-containing solution and has obtained good results.

When empyema is produced by one or more organisms for which penicillin is effective, particularly staphylococci and possibly streptococci, it should be employed because of its prompt action. Here, the same principle holds true with reference to cleansing the empyema cavity as described by Carpenter. When this has been accomplished 30,000 to 40,000 units of penicillin in normal physiological saline solution should be injected directly into the empyema cavity twice every twenty-four hours. Inasmuch as six to eight hours are required for penicillin to produce its best effect, obviously this solution should not be used for irrigation but retained in the pleural cavity.

Thus, with the new drugs which have some specificity for organisms which frequently invade the pleural cavity and with Carpenter's method of preparing the space for their administration, it appears that the need will decrease for open drainage and thoracoplasty in the treatment of empyema complicating artificial or spontaneous pneumothorax.

J.A.M.

Book Reviews

Minor Surgery, by FREDERICK CHRISTOPHER, M.D.; Philadelphia: W. B. Saunders Co.; 5th edition; 1944. Price \$10.

A comparison of this up-to-date volume with the first edition which appeared in 1929, fifteen years ago, clearly reveals the result of systematic attention to all of the improvements which have occurred in each chapter of *Minor Surgery* during this period. Christopher has kept his *Minor Surgery* book regularly revised and improved as an avocation while carrying on an active surgical practice in a Chicago suburb where his clientele demands the best minor surgery as well as the best major surgery.

Open wounds and particularly the soap and water preparation of fresh, open wounds are discussed in the most modern manner with excellent illustrations, numerous quotations and an up-to-date bibliography. The chapter on Burns has been thoroughly revised and all of the modern procedures are discussed. For the benefit of interns and others interested there is an excellent chapter on preoperative and postoperative care.

The bibliography at the bottom of the pages is of interest because one finds the names of many friends and acquaintances who have in recent years either through publications or personal communications to the author, contributed useful procedures in minor surgery. It suggests that many are following the practice of forwarding their unpublished discoveries to Christopher. Tucked away in the pages of this volume are thousands of valuable morsels which will go far to uplift the general standard of surgical practice in all communities.

The Mind of the Injured Man, by JOSEPH L. FETTERMAN, M.D.; Chicago, Industrial Medicine Book Co.; 260 pages; 28 illustrations. Price \$4.

This book apparently has been written for popular rather than medical interest, since the author reverts to a rather simplified description of the nervous system and its diseases. In spite of its brevity, the author covers an amazing number of subjects within the realm of neurology and psychiatry. For lay readers this book no doubt contains many new and interesting facts; for the medical profession, it merely provides a very brief review of well known facts and principles.

News Items

The governor of North Dakota recently called a conference of professional and lay people to consider the problem of extending health services and medical care in the postwar period. In his introductory remarks the governor stated that the conference was the outgrowth of persistent demands on the part of certain individuals in the state and the series of open forum discussions held throughout the state last winter which were sponsored by farm organizations and at which Miss Elin Anderson of the Farm Foundation was the principal speaker. During the conference the secretary of the North Dakota state medical association asserted that the standard of medical care in the state is higher than in most states, and that the cooperative efforts of the state health department and the physicians in the state have produced one of the lowest rates for maternal and infant mortality in the nation. He drew attention to the large number of North Dakota physicians who are in the armed forces and to the efforts being made by the state medical association to insure the return of these practitioners to their former locations. He discussed the difficulties in obtaining physicians to settle in rural areas and suggested that the conference would do well to study ways and means of transporting patients from sparsely settled areas to established centers for diagnosis and treatment. No one speaking at the conference contended that the problem of adequate medical care in North Dakota is serious. The conference adjourned after recommending that the governor appoint a committee consisting of representatives of all interested groups, including the medical profession, to study the problem.

Dr. Leo A. Nash, X-ray specialist at St. John's Hospital, Fargo, North Dakota for three and one-half years, associated himself with Dr. Edward Schons, St. Paul on July 1st.

Dr. Irvin L. Schuchardt, formerly of Leola and Aberdeen, South Dakota has returned from overseas service with the army medical corps in the Papuan campaign in New Guinea and has reopened offices in the latter city.

Dr. Miles A. Kaa, Hamilton, Montana, has been appointed county physician for the year beginning July 1st.

Dr. A. T. Munro, Kalispell, Montana, has been appointed physician of Flathead county, in which capacity he had already been serving.

Dr. George F. Campana, formerly head of the division of preventable diseases, North Dakota state department of health, has been appointed state health officer, following the resignation of Dr. Frank J. Hill, who on June 20th, became health commissioner of Minneapolis.

Dr. F. H. Redewill, for 16 months director of the health department of Sioux Falls, S. D., has been succeeded by Dr. Emil Erickson, at one time city health officer of Sioux Falls and for the last year assistant health director to Dr. Redewill. Dr. Redewill has accepted a position as venereal disease control officer of the Los Angeles county, California health department.

Dr. F. E. Harrington, retired Minneapolis health commissioner, assumed temporary charge of the Minneapolis general hospital as superintendent of that institution.

With the opening of the new school year, 30 days hence, the diphtheria and smallpox immunization clinics at these South Dakota points will be resumed: Dell Rapids, Baltic, Brandon, Valley Springs, Hartford and Humboldt.

Dr. E. J. Beithon, Hankinson, North Dakota, has become the president of the Hankinson Hospital Association, now forming.

Dr. Thomas C. Patterson, Lisbon, North Dakota, was honored June 14th by a parade participated in by the people whom he had brought into the world from 1897 to 1944. The various periods of Dr. Patterson's life in Lisbon were depicted by the paraders. Among the speakers of the occasion were Drs. Ralph Tainter and George H. Haynes.

Dr. John G. Lamont, superintendent of the state school at Grafton, North Dakota, attended the recent meeting of the American Association in Mental Deficiency and the American Association of Psychiatry in Philadelphia.

No less than the army, the navy and the Red Cross, the United Seamen's Service—War Shipping Administration looks after the medical needs of American merchant seamen. To welcome the repatriates just returned from the Normandy beachheads, 418 in number, arriving in New York by army transport July 7, physicians were at the pier and arrangements were made for prompt hospitalization. Dr. Daniel Blain of New York is in charge of the medical division and J. Reilly Marcus handles the division's business affairs under Dr. Blain.

(Continued on ninth page following)

Future Meetings

The University of Illinois college of medicine offers the fall didactic and clinical refresher course for specialists in otolaryngology to the number of twenty-five. Dates are September 25 to 30, the fee \$50, the address to which to write, Department of Otolaryngology, 1853 West Polk Street, Chicago 12, Illinois.

The Massachusetts Medico-Legal Society in conjunction with the medico-legal departments of Harvard, Boston University and Tufts medical schools, has arranged for a conference at Boston city hospital, Oct. 4, 1944, a part of the Harvard medical school seminar in legal medicine to occupy the week of October 2-7. Application should be made to the Harvard medical school Courses for Graduates.

The ninth annual assembly of the International College of Surgeons will be held October 3-5 inclusive, 1944, at Benjamin Franklin hotel in Philadelphia. The program will be devoted to war rehabilitation and civilian surgery.

Necrology

Dr. John Arthur Lamb, 70, city health officer of Kalispell, Montana, died June 20th, at a hospital in that city after several weeks illness. He had received a commission as captain in the medical corps in world war I and was prominent in Boy Scout and radio activities.

Dr. Julius Daniel Mueller, 39, Flandreau, South Dakota, physician and surgeon, died June 28th, enroute from Flandreau to Wentworth Park, Lake Madison. He was engaged in moving a cottage to the latter point when it tipped from the trucks. His body was crushed. He died in a hospital at Flandreau, where he had practiced for eleven years. He was a graduate of the school of medicine of the University of South Dakota.

Dr. Pierre Ulric Laberge, 83, of Ambrose, North Dakota, died at that city, July 4. He was born at Montreal where he attended medical college, removing to North Dakota at the age of twenty-six and settling near Grafton. Other points of practice were Williston, Crosby, Fortuna and Westby North Dakota.

Dr. David Powrie Maitland, 78, pioneer physician of Jackson, Minnesota, where he had practiced for a half century, died June 27 at Halloran hospital, to which city he had been taken the day before, after suffering a heart attack. He was born at Satnia, Ontario, Canada, graduated from the medical course from the University of Michigan, was at one time associated with the Chicago Polyclinic hospital, specializing in diseases of women and children and had studied eye, ear, nose and throat at the University of Berlin. For over 20 years, he was chairman of the Jackson board of health and had served several terms as county coroner. Dr. Maitland's interests lay along the lines of travel, literature, fraternalism, and out-door sports, in all of which fields he had made friends.

Dr. James Brooks Vaughn, 76, Castlewood, South Dakota, 32 years a member of South Dakota state medical association, died at Watertown July 16. He was graduated from Missouri medical college in 1894, taking postgraduate work at New York, Berlin and Chicago. The South Dakota state board of health, at its regular session two days later passed resolutions of regret.

Dr. Jacques V. Quick, 82, Wahpeton, North Dakota, believed to be the oldest practicing physician in years of consecutive service in North Dakota, died at Fargo, July 19. He had resided in Wahpeton 55 years. Dr. Quick was a graduate of the Philadelphia college of pharmacy and Jefferson medical college, Philadelphia.

Dr. James E. Arnold, 54, in night charge of the receiving ward at General Hospital, Minneapolis, died there during the day, July 17, as he was being admitted as a patient.

Case A.C.

SYMPTOMS: Sore-throat—pain on swallowing
Temperature 100-102°

BACTERIOLOGICAL FINDINGS: Throat culture
showed hemolytic streptococci

DIAGNOSIS: Acute ulcerative stomatitis

TREATMENT: One White's Sulfathiazole
Gum Tablet chewed for 1/2 hour every
2 hours for 6 doses

RESULTS: Immediate improvement—
lesions healed and temperature normal
after 72 hours



This actual case report typifies the response to this new, effective method of providing local chemotherapy in oropharyngeal infections. Further indications include acute tonsillitis and pharyngitis, acute sore throat, infectious gingivitis and stomatitis caused by sulfonamide-susceptible microorganisms. Also suggested in the prevention of local infection secondary to oral and pharyngeal surgery.

Important: White's Sulfathiazole Gum provides a high, sustained salivary concentration of locally active sulfathiazole (70 mg. per cent)—with negligible systemic absorption. Even with maximal dosage, blood levels seldom approach a level of 0.5-1 mg. per cent. Thus untoward systemic reactions are clearly obviated.

White's SULFATHIAZOLE GUM

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on prescription
only.



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Splendid opportunity for physician and surgeon. Excellent practice and 14-bed hospital with modern equipment. Hospital may be rented. Thriving community 45 miles from Minneapolis. Address Box 806, care of this office.

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for beginning or established physician to share suite of offices with another physician or dentist. Individual treatment room or laboratory, in new office building located in very best residential retail section. Address Box 761A, care of this office.

FOR SALE

Medical and surgical equipment, supplies and large safe from the late Dr. F. M. Babcock office. Lana M. Babcock, Northfield, Minn. Phone 143.

Advertiser's Announcements

LEDERLE VACCINE TYPHUS PREVENTIVE

The most important procedure in preparing a vaccine, for immunizing against a given disease, is to grow the specific causative organism under such conditions that a vigorous, immunity-producing strain will result. These organisms are subsequently "harvested" from the culture medium, killed, and the dead microbes suspended in liquid suitable for injection in man. Impurities are, of course, removed from the final product. Typhus organisms—known as *rickettsiae*—require exceptional culture media to produce a vigorous growth that will induce a strong immunity. Consequently, many experiments were conducted to determine an easily available source of such culture material and one that lent itself to extraction of the organisms for manufacture of the vaccine.

In 1939, Dr. Hetald R. Cox, then in the U. S. Public Health Service, but now a member of the Lederle Laboratories staff, discovered a new method for growing micro-organisms of the family *rickettsiae*. He discovered the egg yolk sac of live chick embryos still in the shell to be an ideal culture medium for the organisms. He originally used the method to prepare a vaccine against Rocky Mountain Spotted Fever. Later, it was adapted by Lederle scientists for the large-scale growth of the typhus microbe in the quantity production of typhus vaccine. The original method of preparing vaccine from the organisms was also improved following recommendations of the National Institute of Health. An extract of the culture, made with an organic solvent, now replaces the older use of physiological salt solution for that purpose.

Typhus fever epidemics, erupting at intervals and decimating whole populations, arise from the destruction caused by the war, the poor health of the population and the over-crowding of people into unsanitary living quarters. Preventive measures include sanitation, personal cleanliness and the use of insecticides and insect repellents to repel or destroy body lice. Despite these measures, prudence requires that exposed persons be given immunity against the disease by vaccination.

The United States Army has developed special formulae to repel and destroy lice, and additionally adopted meticulous methods for the promotion of cleanliness in civil and military populations.

Several important American cities have recently conducted successful campaigns against rats infesting their garbage dumps by this method. Experience throughout the world has also shown its effectiveness. Destruction of rats not only prevents spread of diseases they carry but also helps conserve part of the nation's annual cost of \$200,000,000 for the food they eat and destroy.

WYETH HOPES TO EASE THE DOCTOR'S LOAD

An educational campaign to help relieve the consequences of the doctor shortage is being undertaken by Wyeth Incorporated, one of the nation's oldest pharmaceutical houses.

This campaign, in the interests of public health, was launched in order to inform the individual citizen on the part he can play in helping to ease the burden on the nation's over-worked physicians, awakening him to the potential seriousness of the problem. The theme is "Save Your Doctor's Time in Wartime."

The campaign is based on careful research, and will cover news and informational materials to editors as well as institutional advertisements in various publications. The aim is to induce the voluntary help of millions of patriotic citizens.

Wyeth is pointing out to the public the necessity for doing its share to aid in the problems engendered by the doctor shortage. In a series of advertisements in media which reach approximately 12,000,000 readers, each citizen is urged to take four helpful steps in case of illness:

First, phone the doctor and tell him as clearly as you can what is wrong. Let him decide whether he should come to see you or you should go to him.

Second, go to him whenever you are able, as house visits take time when someone else may need him urgently.

Third, keep your appointment promptly and make it at the doctor's convenience, so that he can plan his hours more efficiently.

Fourth, follow the doctor's advice to the letter so that your trouble doesn't drag on, get complicated or need extra attention.

Merely by heeding these four simple rules the civilian population will go a long way to alleviate the burden of physicians in this country, a worthy public service in this wartime emergency.

ANNUAL SCHERING AWARD COMPETITION

Three major prizes of a total value of \$1,000 are awarded to undergraduate medical students who submit the best critical dissertations on the subject "Hormones and Cancer." The judges for the Schering Award will include outstanding American investigators in the fields of endocrinology, medicine and chemistry:

R. G. Hoskins, Director of the Memorial Foundation for Neuro-Endocrine Research, Harvard Medical School; and Editor Emeritus of *Endocrinology* and of the *Journal of Clinical Endocrinology*, official organs of the Association for the Study of Internal Secretions.

E. P. McCullagh, Section of Endocrinology and Metabolism, the Cleveland Clinic.

E. C. Hamblen, Associate Professor and Chief of the Endocrine Division, Department of Obstetrics and Gynecology, Duke University School of Medicine.

E. Novak, Associate Professor of Obstetrics, University of Maryland School of Medicine and College of Physicians and Surgeons.

H. M. Evans, Institute of Experimental Biology, University of California.

F. C. Koch, Chairman of the Department of Biochemistry, University of Chicago.

E. Shorr, Assistant Professor of Medicine, Cornell University Medical College, and the New York Hospital.

The Schering Award was established by the Schering Corporation in 1941, for the purpose of encouraging a wider interest in current endocrinological developments among undergraduate medical students. The competition is sponsored and administered by the Association of Internes and Medical Students, and participation is limited to undergraduate medical students in the United States and Canada. Submittances for the third nationwide competition are now being judged.

PHYSICIAN-ARTISTS' PRIZE CONTEST

The American Physicians Art Association, with the cooperation of Mead Johnson & Company, is offering an important series of war bonds as prizes to physicians in the armed services and also physicians in civilian practice for their best artistic works depicting the medical profession's "skill and courage and devotion beyond the call of duty."

Announcement of further details will be made soon by the association's secretary, Dr. F. H. Redewill, Flood Building, San Francisco, California.

"FIRST WE MUST STOP THAT DIARRHEA!"



(ulcerative colitis)

NATURALLY, any condition as serious as ulcerative colitis calls for its own specific treatment.

The physician finds it necessary, however, to provide immediate relief from diarrhea while specific treatment is being instituted.

Kaomagma provides quick relief from diarrhea; consolidates stools

safely, checks dangerous fluid loss.

And the dosage is self-limiting to duration of condition, when, after an initial dose of 2 tablespoonfuls, 1 tablespoonful is taken after every bowel movement. In 12 fl. oz. bottles.

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Philadelphia

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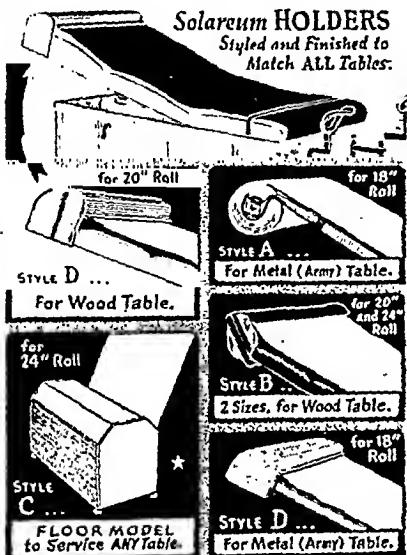
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MINNEAPOLIS 2



This American is not expected to buy an extra War Bond in the 5TH WAR LOAN



But we are.

For each of us here at home, the job now is to buy extra Bonds—100, 200, even 500 dollars worth if possible.

Many of us can do much more than we ever have before.

When the Victory Volunteer comes

to you and asks you to buy extra Bonds, think how much you'd give to have this War over and done.

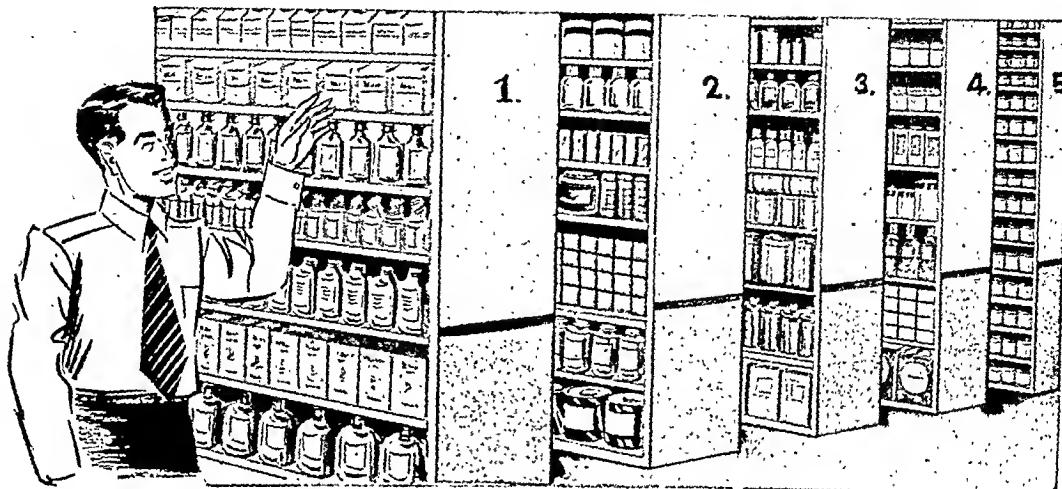
Then remember that you're not giving anything. You're simply *lending* money—putting it in the best investment in the world.



Let's Go... for the Knockout Blow!

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JOURNAL-¹⁰⁰ LANCET

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Doctor—has this ever happened to YOU?

Here's a suggestion, Doctor—treat emergency dental pain with the well-known **POLORIS DENTAL POULTICE**—provides prompt, safe relief until more complete dental treatment is available—usually eases pain without need for opiates or sedatives—will not interfere with subsequent dental treatment. For over 30 years the dental profession has prescribed POLORIS for pain caused by: Dental abscess • Pain

after extraction • Erupting third molar • Irritation after filling • Other painful conditions of the teeth and gums, not due to cavity.

POLORIS is a scientifically tested and proven dental aid . . . acts on

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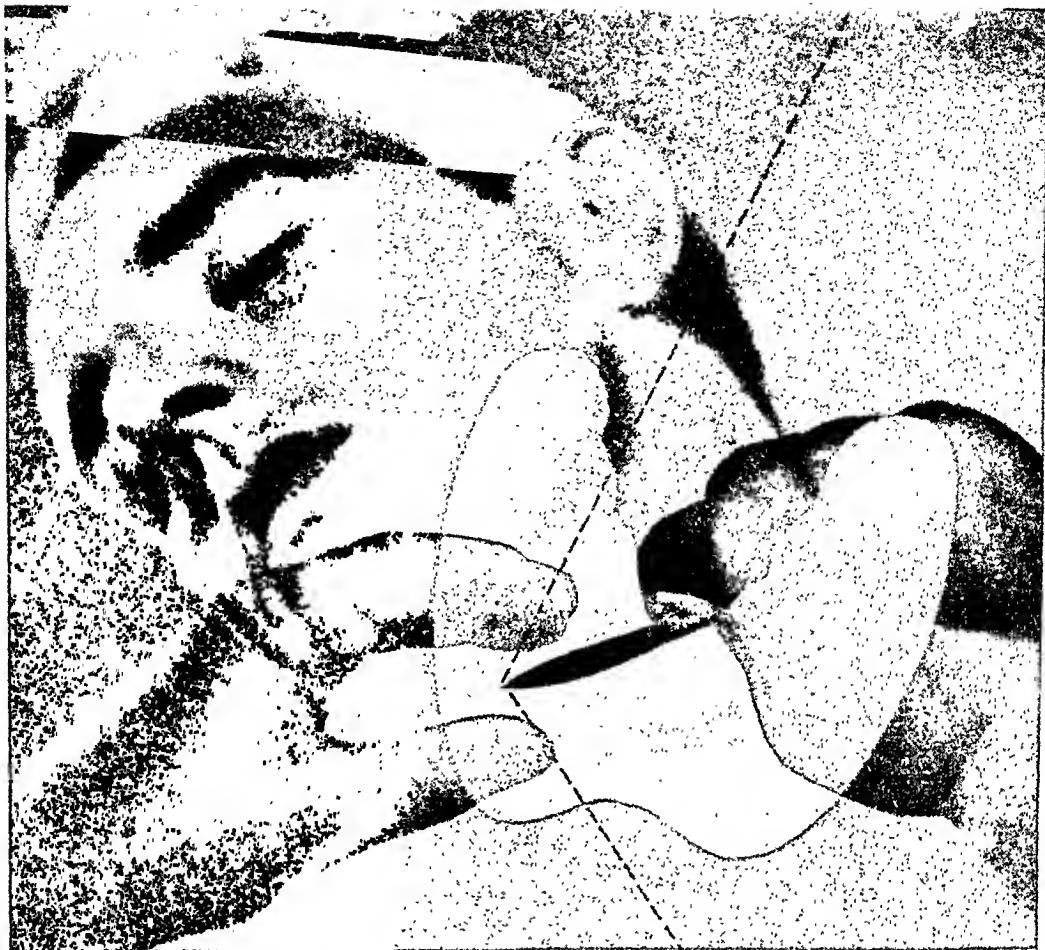
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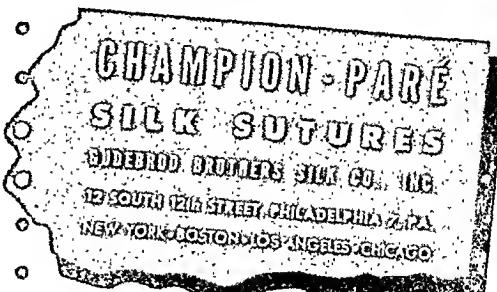
In a Thyroidectomy

In a study of 600 thyroidectomies, it was reported:

*"The incidence of non-suppurative wound complications, such as induration or serum formation, as well as suppurative complications, was substantially reduced in the silk series."**

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*"Annals of Surgery", Aug. 1943, Pg. 298



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NEWS ITEMS

(Continued from page 290)

Major General Norman T. Kirk, army surgeon general, states that today's American soldier is the healthiest to ever take the field, a tribute to the physicians of the United States and the magnificent organization for medical research which is being carried on during the war period.

Major General David N. W. Grant, air surgeon, disclosed July 18th that more than 7,000 casualties were evacuated by air during the first three weeks following D-day in Normandy. The new "flying jeep" airplane was used and several hundred flight surgeons, flight nurses, and enlisted technicians were assigned to the duty.

Lucille Petry, director of the division of nurse education of the United States public health service, invites applications for admission to the schools of nursing. The consultation service of the schools is being regionalized. Correspondence should be directed to the Division of Nurse Education, U. S. Public Health Service, Washington 14, D. C.

The War Department, by Major Glen M. Bronson, officer of the Minneapolis procurement district, calls attention to one way of helping to relieve the shortage of doctors, i.e., encouraging women medical technicians and women who wish to take that training to become Wacs. The Wac organization has a special non-commissioned officer rating for orthopedic technicians, laboratory technicians, X-ray technicians, occupational therapists and psychiatric social workers between 20 and 50 years of age who can qualify. Prospective applicants may address Maj. Bronson at 1016 Builders Exchange, Minneapolis. Physicians are asked to suggest possible candidates.

The American Board of Ophthalmology has moved its executive offices from Portland to Camp Cottage, Maine.

ASHA NEWS LETTER

(Continued from page 286)

Increase in Oral Temperature from Chewing Gum. Searcy (Alabama State Med. Assn. J., Feb. 1944) reports that after five minutes of the chewing of gum the oral temperature rises on an average of 0.4 degree F. Temperature rises as high as 1.2 degrees Fahrenheit were noted following gum chewing. The temperature was similarly raised by chewing soda crackers. Return to normal or below usually occurred after 10 minutes rest.

Physiologic Function of Tonsils. A letter in the J.A.M.A. of June 17, 1944 from Werner Braun calls attention to a report recently made by Trautman and Schreter (Deutsche tierärztl. Wochenschr. 50:361, 1942) which provides new information with regard to the physiologic function of tonsils in animals. Since fowls are normally devoid of tonsils it was theorized that feeding them tonsillar tissue from other animals might produce measurable effects. Such proved to be the case. The feeding of one tonsil a week to young roosters, hens and ducks caused growth inhibition and disturbances in feathers, comb and wattles soon after feeding. If the pharyngeal tonsillar material was taken from a calf the effect on the fowl was greater than when the material was taken from an adult cow. No information was given as to the chemical nature of the hormonal substance.



Liquid SILOMIN

ANTACID KB ADSORBENT

Immediate neutralization of excess gastric acidity is effected by only 75% of the administered dose. The additional 25% maintains a secondary neutralization for a time approximately equal to that required for gastric digestion.



THEODIATAL CAPSULES

Vasodilator KB Antispasmodic

The carefully compounded ingredients act synergistically to: (1) Promote dilation of the peripheral vessels; (2) Decrease tension in the larger arteries, and; (3) Improve cardiac nutrition.

KUNZE & BEYERSDORF, INC.
MILWAUKEE, WISCONSIN

Salivary Amylase and Dental Caries. Turner and Crane (Science of March 31, 1944) call attention to a fact previously reported by Florestano, Faber and James (J. Am. Dent. A., Nov. 1941). Through study of the rate of starch hydrolysis by saliva it was determined that:

(1) Persons without dental caries usually require approximately 45 minutes to complete starch hydrolysis by saliva.

(2) Persons with dental caries hydrolyse starch much more rapidly.

(3) The more caries a person has the more rapid his rate of starch hydrolysis will be. Thus the saliva of persons with 4 to 6 cavities completed starch hydrolysis within 19 minutes, those with 10 to 12 cavities within 7 minutes, those with 20 to 30 cavities in less than 2 minutes.

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relieves the various vasomotor and nervous disturbances so frequent at the menopausal period, with uniformly good results.

Pasadyne acts promptly and without undesirable by-effects.

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KNOW IT'S PURE!

PURE

air in hospital operating rooms.
Just as Sterilamps destroy trouble-making bacteria in the

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Symptoms are often relieved when offending allergens are removed. Prescribe AR-EX Cosmetics—free from known irritants and allergens.



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Equipped for treatments in Massage, Diathermy, Muscle Training in or out of the pool, Posture Exercises, Ultra Violet, Infra Red, Hot Packs, etc.

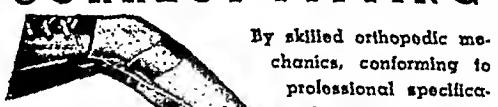
Patients treated only under the direction of their respective physicians. In the home, hospital, or at the office.

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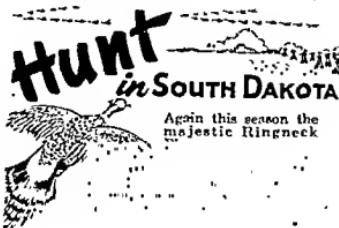
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South Dakota is the Nation's No. 1 vacation state.

Dakota write

A. H. PANKOW, Publicity Director
So. Dak. State Highway Commission
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Cook County Graduate School of Medicine

(In Affiliation with Cook County Hospital)
Incorporated not for profit

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SURGERY—Two Weeks Intensive Course in Surgical Techniques starting August 7, August 21, and every two weeks throughout the year. One Week Course in Colon and Rectal Surgery starts October 16.

MEDICINE—Two Weeks Course in Internal Medicine starts October 16.

GYNECOLOGY—Two Weeks Intensive Course starts October 2. One Week Course Vaginal Approach to Pelvic Surgery starts October 23.

OBSTETRICS—Two Weeks Intensive Course starts October 16.

ANESTHESIA—Two Weeks Course Regional, Intravenous and Caudal Anesthesia.

GASTROSCOPY—Personal Course starts October 16.

OTOLARYNGOLOGY—Two Weeks Intensive Course starts October 2.

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CYSTOSCOPY—Ten Day Practical Course every two weeks.

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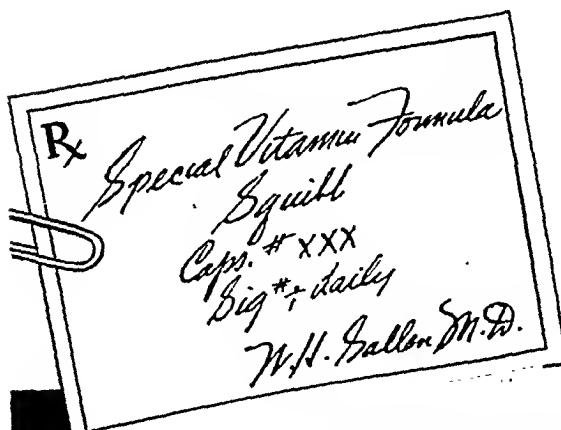
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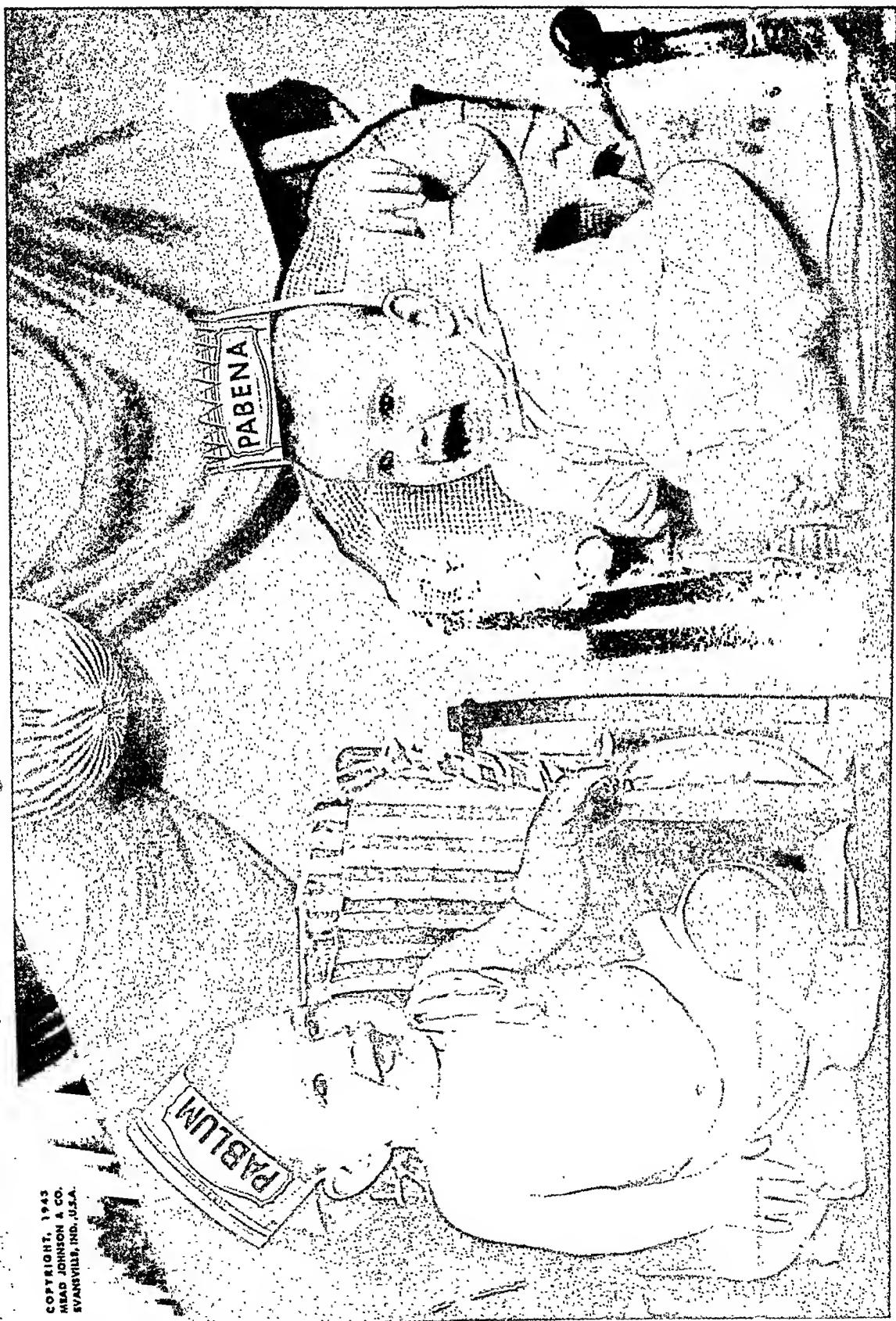
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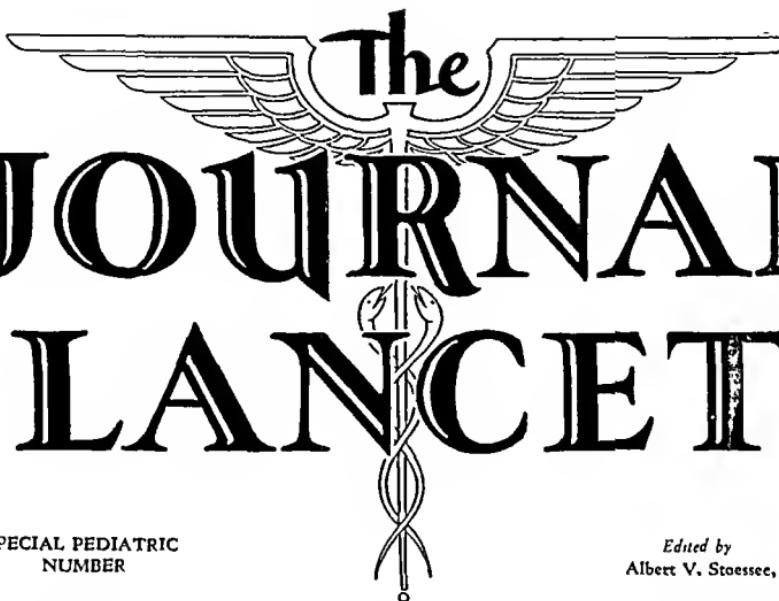
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May, 1944

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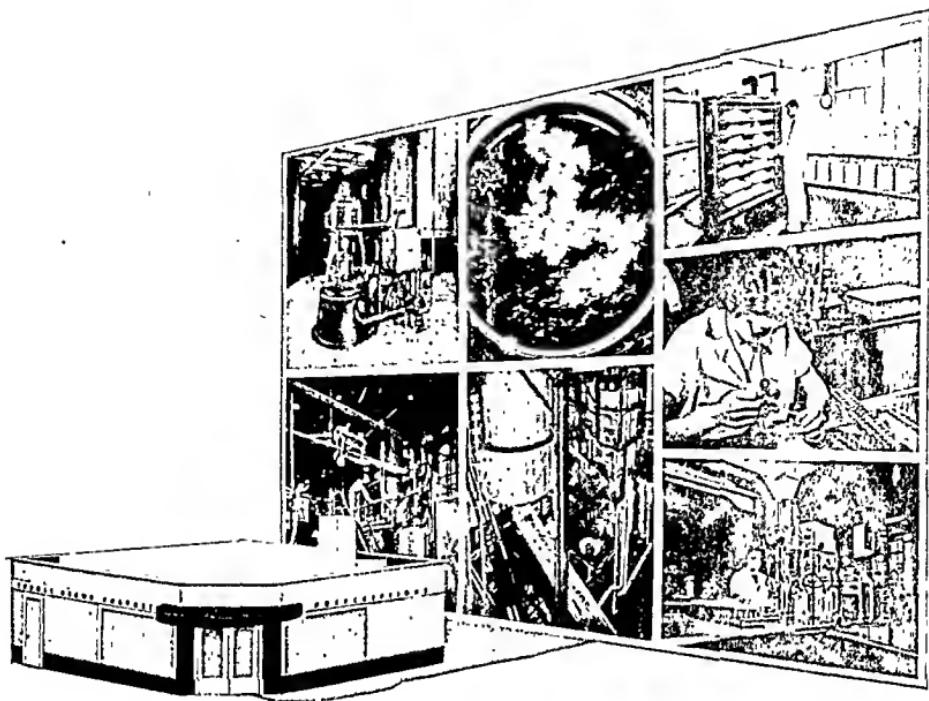
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**Laryngoscope, Feb. 1935, Vol. XLV, No. 2—149-154.*

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1 + 1 = 1

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level tablespoonful
of Pablum (or Pabena)
when mixed with . . .

ONE

tablespoonful of milk,
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or cold) makes . . .

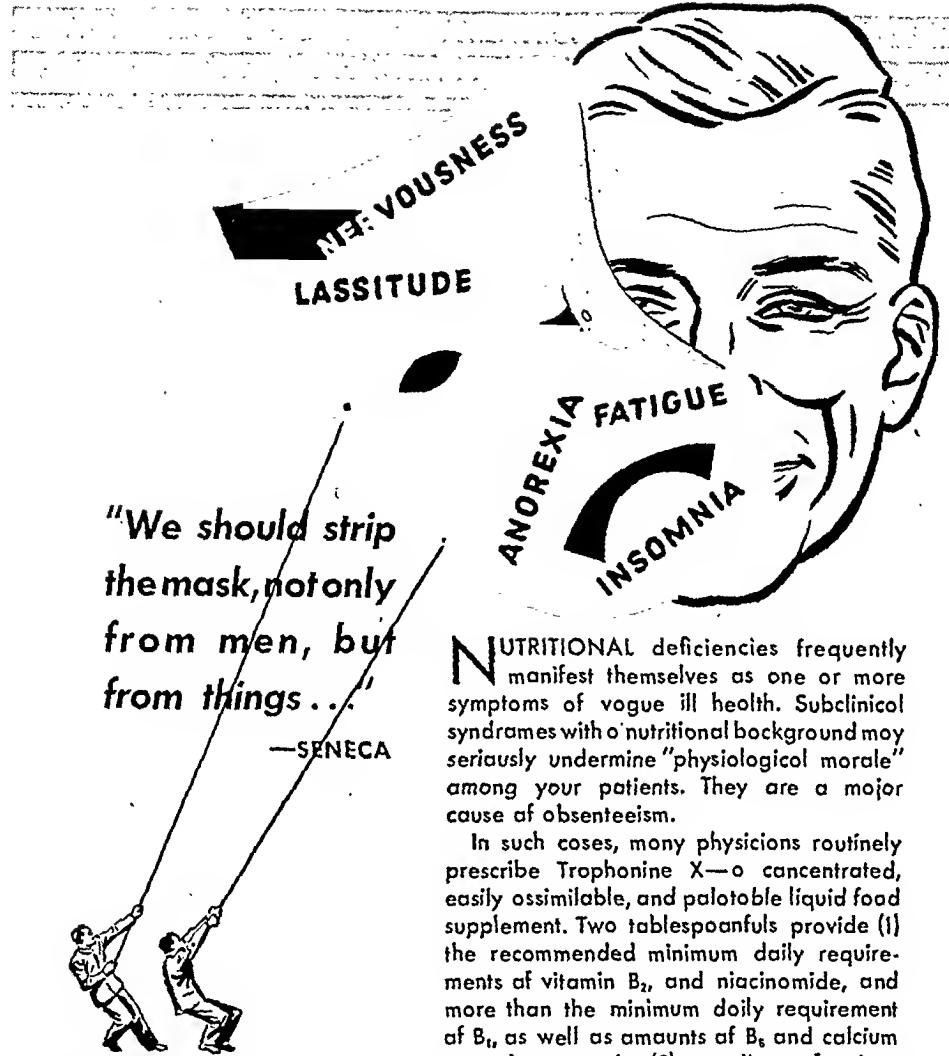
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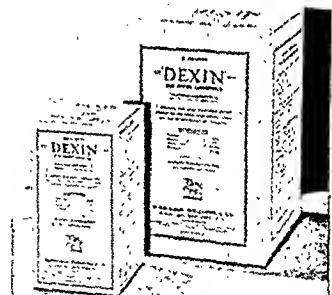
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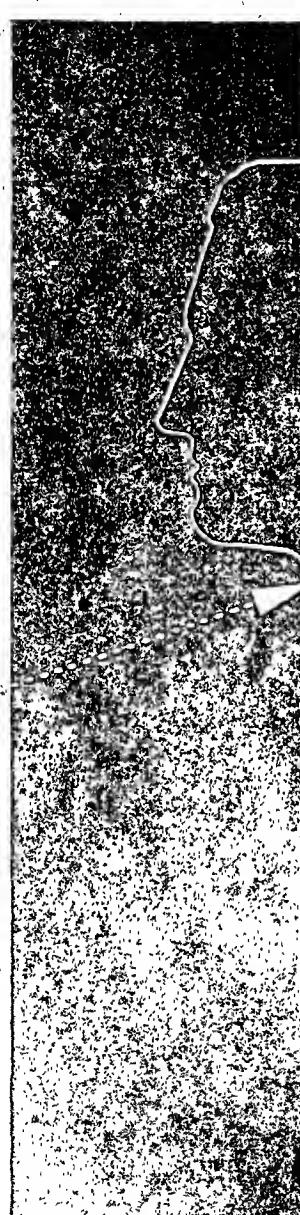
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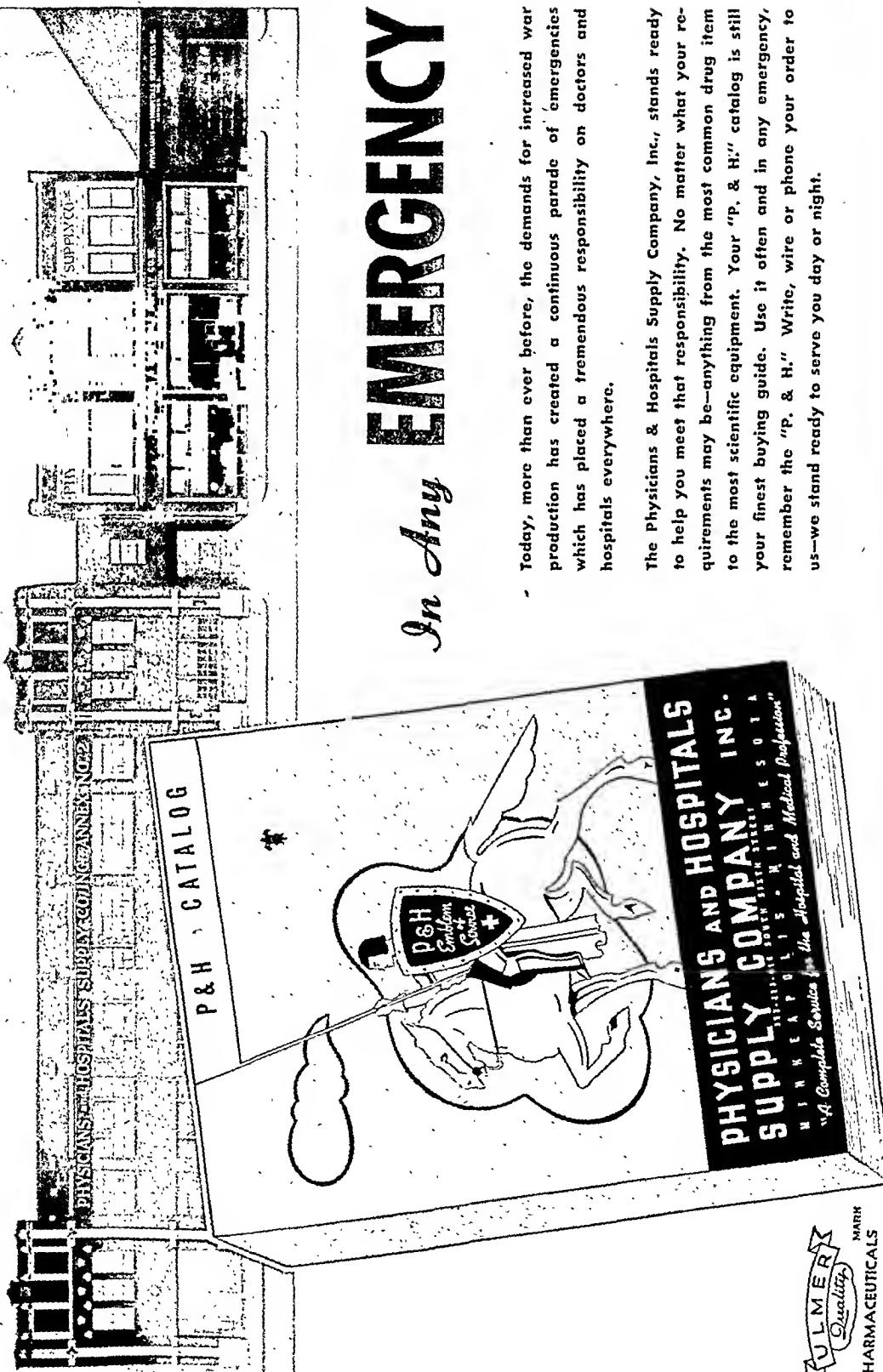
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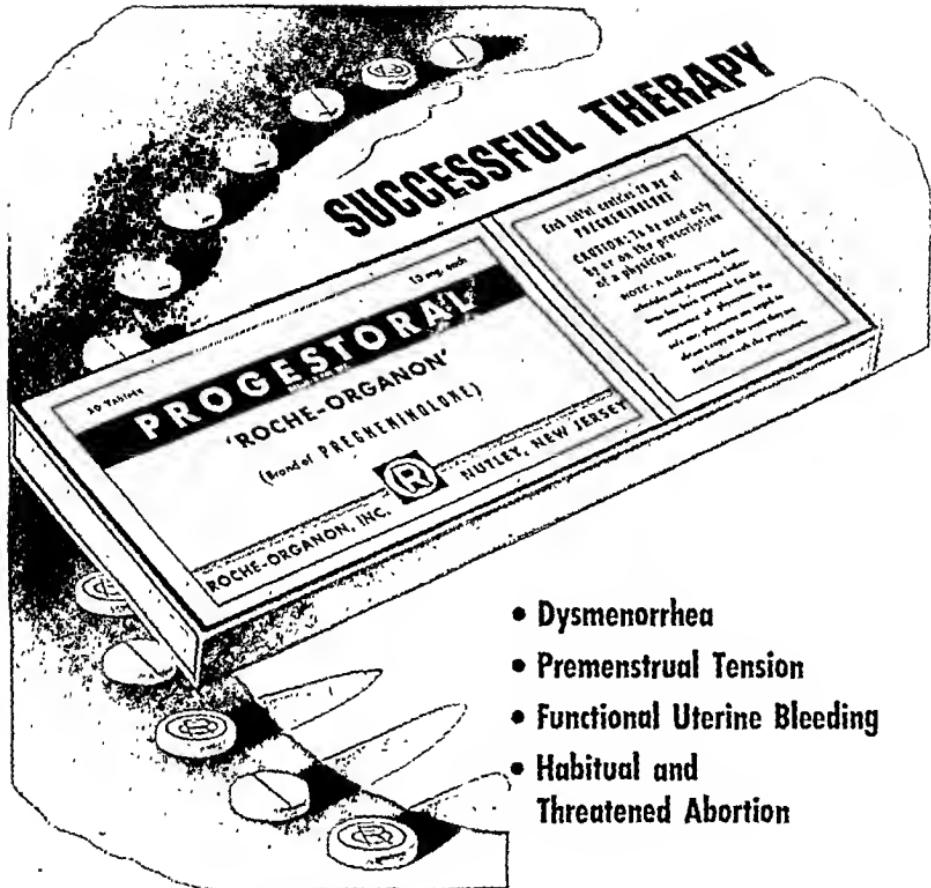
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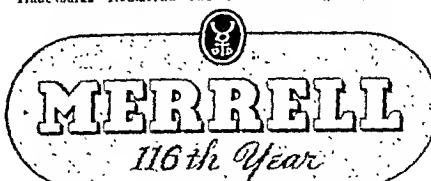
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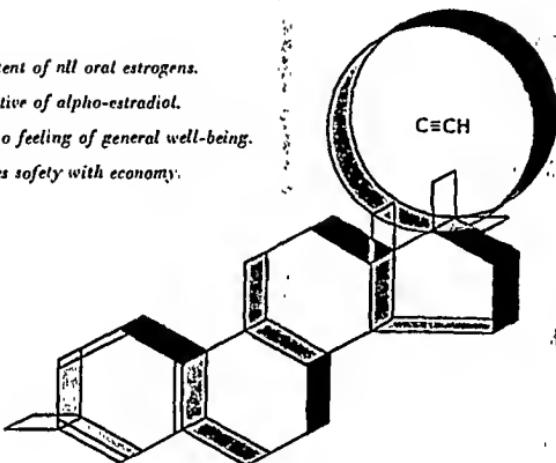
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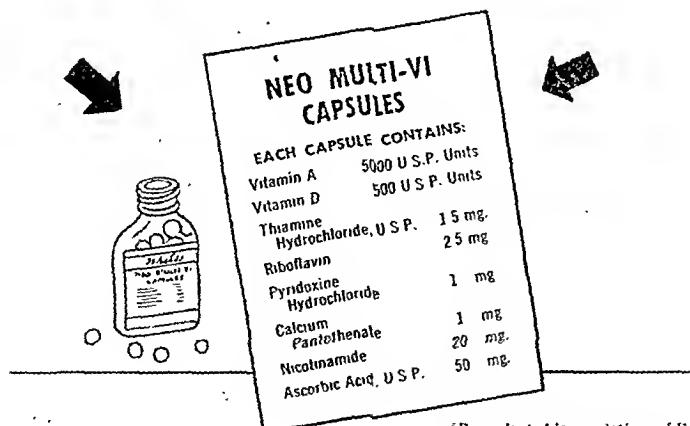
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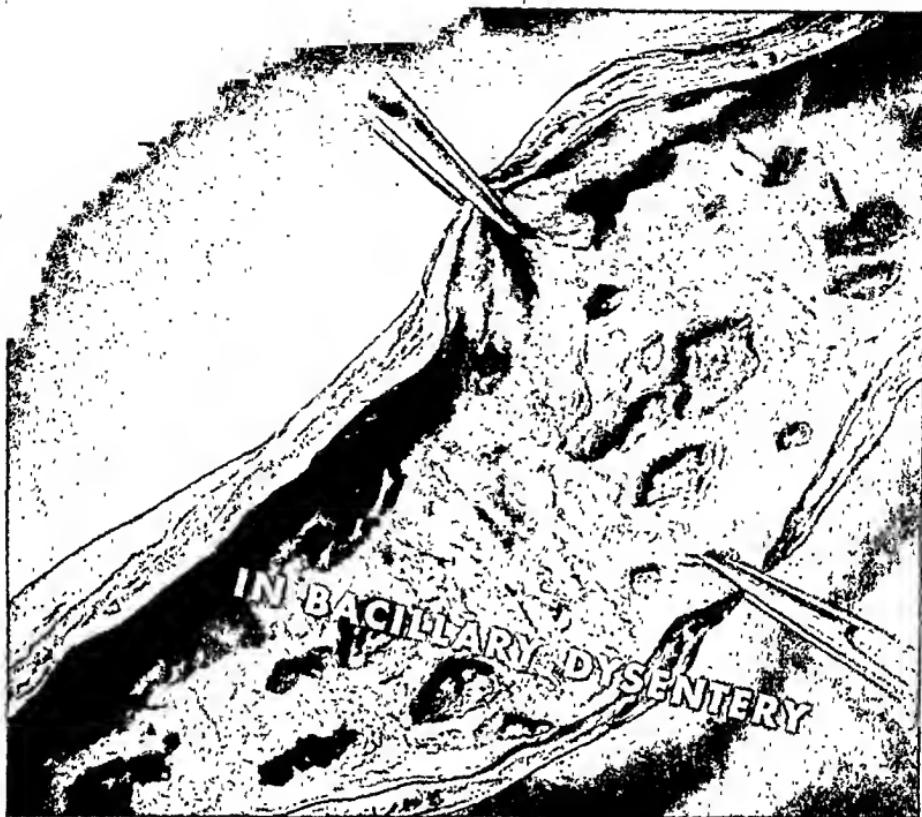
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1 J. Lab. & Clin. Med., 28:162, 1942. 2 J. A. M. A., 119:615, 1942.

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The JOURNAL LANCET

Minneapolis, Minnesota
May, 1944

Vol. LXIV, No. 5
New Series

CHILD HEALTH DAY--1944

BY THE PRESIDENT OF THE UNITED STATES OF AMERICA
A Proclamation

WHEREAS, the Congress by joint resolution of May 18, 1928 (45 Stat. 617), has authorized and requested the President of the United States to issue annually a proclamation setting apart May 1 as Child Health Day:

NOW, THEREFORE, I, FRANKLIN D. ROOSEVELT, President of the United States of America, in recognition of the importance to every child and young person of a healthy body and a sturdy spirit, do hereby designate May 1 of this year as Child Health Day.

And I invite our boys and girls to use this occasion as a time to gather with parents, teachers, and other citizens, or by themselves, in schools, churches, and community centers, and to consider how we can make our home and community life contribute in full measure to the building of buoyant health and valiant spirit in all our boys and girls.

IN WITNESS WHEREOF, I have hereunto set my hand and caused the seal of the United States of America to be affixed.

DONE at the City of Washington this seventeenth day of March in the year of our Lord nineteen hundred and forty-four and of the Independence of the United States of America the one hundred and sixty-eighth.

(SEAL)

By the President:
CORDELL HULL
Secretary of State

FRANKLIN D. ROOSEVELT

Types of Congenital Heart Diseases in 15,597 Autopsies*

B. J. Clawson, M.D.

Minneapolis, Minnesota

IN the 15,597 autopsies performed in the Department of Pathology at the University of Minnesota during the years 1936-41, one hundred and forty-one cases of congenital heart deformities were found. The anomalies present were due for the most part to an arrested or irregular embryological development of the heart or aortic arches.

The primitive heart is a tube composed of four parts; the bulbus, ventricle, atrium and sinus venosus. The bulbus develops into the aortic conus, the pulmonary conus and the aortic and pulmonary valves. (Developmental disturbances in the bulbus are common.) The ventricle and atrium form the respective cavities in the mature heart. The sinus venosus develops into the superior and inferior vena cavae.

Of the six aortic arches, only two, the fourth and sixth, have any significance in the development of congenital heart anomalies. The right fourth forms the innominate artery and part of the right subclavian. The left fourth develops into the aortic arch. The sixth gives rise to the pulmonary arterial trunk on the right and to the ductus arteriosus on the left. The critical period in development is between the fifth and eighth weeks of fetal life.

Three embryological processes, septal formation, rotation and torsion and adjustment of the fourth and sixth aortic arches, must be considered in interpreting the vast number of anomalies possible.

Seven types of abnormalities are considered in this report: (1) disturbance in the formation of septa; (2) disturbance in rotation and torsion; (3) disturbance in the adjustment of the aortic arches; (4) valvular deformities; (5) primary changes in atria or ventricles; (6) pericardial defects and (7) coronary artery defects.

Of our cases congenital hearts comprised 9.04 per thousand deaths. Females predominated slightly (8.02 males per thousand male, and 10.78 females per thousand female autopsies). It is to be noted that most of the cases died in the first decade. Eight-seven per cent were stillbirths or died in the first two decades. It is obvious why in an autopsy series the incidence of congenital heart diseases differs from the total incidence or incidence of types in a clinical series.

The relative frequency of the different types of congenital hearts met is shown in the following tables.

In Table 1 the total incidence and the incidences of males and females per thousand autopsies are tabulated. In Table 2 the types due to *disturbance of septal formation* are recorded. There are 76 cases (53.9 per cent of the entire series) which have been broken down as follows: (1) Persistent truncus arteriosus; this occurs when the common aortic trunk fails to divide into the aorta and the pulmonary artery. The persistent truncus

TABLE 1
Congenital Hearts in 15,597 Autopsies (1936-41), 141 cases.
Age and Sex.

Decade	Males (79)			Females (62)			Total (141)		
	Autopsies	No.	M.	Autopsies	No.	M.	Autopsies	No.	M.
SB*	79	11	13.90	619	6	9.69	1410	17	12.05
1.	1143	50	43.74	821	51	62.11	1964	101	51.42
2.	267	4	14.98	195	1	5.12	462	5	10.82
3.	449	5	11.13	369	2	5.42	818	7	8.55
4.	643	3	4.66	469	1	2.13	1112	4	3.59
5.	1215	1	0.82	599	1	1.66	1814	2	1.10
6.	1731	2	1.15	759			2400	2	0.80
7.	1682	2	1.18	851			2533	2	0.78
8.	1423	1	0.70	779			2202	1	0.45
9.	477			265			742		
10.	28			22			50		
Total	9849	79	8.02	5748	62	10.78	15597	141	9.04

*Stillbirths

TABLE 2
Disturbance in Formation of Septa, 76 Cases, 53.9 per cent.

Types	No. Total	Per cent of Ages in decades								
		SB	1	2	3	4	5	6	7	8
1. Persistent truncus arteriosus	6	4.3	2	4	—	—	—	—	—	—
2. Atrial septal defect	4	2.8	1	2	—	1	—	—	—	—
3. Ventricular septal defect	37	26.2	0	29	1	1	—	—	—	—
4. Septal defects (special)	18	11.3	2	10	1	—	2	—	—	1
(a) Lutembacher's disease	3	2.1	—	—	—	2	—	—	—	—
(b) Cor bilobata	6	4.3	1	4	1	—	—	—	—	—
(c) Cor triatriale	—	—	—	—	—	—	—	—	—	—
(d) Biatratrium	7	4.9	1	6	—	—	—	—	—	—
5. Septal defects with certain other combined defects	13	9.2	2	10	—	1	—	—	—	—
(a) Tetralogy of Fallot	9	6.3	1	7	—	1	—	—	—	—
(b) Eisenmenger's disease	4	2.8	1	3	—	1	—	—	—	—

usually arises from the right ventricle, but may over-ride both ventricles. All have ventricular septal defects. Cyanosis is extreme. The right ventricle hypertrophies and fails. Two were stillbirths and all the other four died within the first year of life.

(2) In four cases death apparently was due primarily to an atrial septal defect. One was a stillbirth, two died in the first decade, and one lived into the fourth decade. Atrial septal defects, to a slight degree, relatively frequent, are found in about 20 per cent of autopsies, but it is seldom that a patent foramen ovale is sufficiently wide to bring about cardiac failure, unless there are associated defects. With an atrial septal defect, the blood is shunted from the left to the right atrium. The minute volume in the pulmonary circuit is increased. Due to the increased work, the right ventricle hypertrophies and fails. Cyanosis occurs only at the terminal stage.

(3) There were 37 cases (26.2 per cent) of ventricular septal defect. This is the most common type of congenital heart. Six were stillbirths. Of the 29 who died in the first decade, 28 died during the first year. Only two lived to be ten years old. The right ventricle hypertrophies and dilates. Cyanosis occurs only as a terminal condition.

TABLE 3
Disturbance in Rotation and Torsion, 8 Cases, 5.7 per cent.

Types	No.	Total	Per cent of	Ages in decades								
				SB	1	2	3	4	5	6	7	8
1. Transposition of arterial trunks	8	57	—	8	—	—	—	—	—	—	—	—
(a) with closed ventricular septum	4	2.8	—	4	—	—	—	—	—	—	—	—
(b) with ventricular septal defect	4	2.8	—	4	—	—	—	—	—	—	—	—

(4) In one group of special septal defects other defects are associated.

(a) In Lutembacher's disease an atrial septal defect is associated with an acquired mitral insufficiency or stenosis. The strain upon the right heart is greater than that resulting from a pure atrial septal defect. Cyanosis does not occur since the shunt is arteriovenous. There were three of this type. Two died in the fourth decade and one in the seventh.

(b) Cor bilobare is a type of congenital heart in which both atrial and ventricular septa are almost or completely absent. There were six of this type. All died before the 20th year. One lived to be 19, and died from other causes. The heart was not enlarged. Cyanosis is marked in the group.

(c) In cor triloculare biventriculare there is complete absence of the ventricular septum. Cyanosis is marked. There were seven of this type. One was a stillbirth and six died in the first decade, all in the first year.

(5) A group of ventricular septal defects commonly associated with certain other combined defects.

(a) The tetralogy of Fallot includes a combination of anomalies. Three are primary. These are pulmonary stenosis (bulbus anomaly), interventricular septal defect (disturbance in septal formation), and dextroposition of the aorta (disturbance of rotation and torsion). The fourth pathological condition in the tetrad, right ventricular hypertrophy, is secondary to the three primary defects. Cyanosis is marked. The right heart fails. There were nine of this type, 6.3 per cent. One was a stillbirth, seven died in the first decade, and one in the third.

(b) The Eisenmenger's type has the same combination of defects as the tetralogy of Fallot with the exception of the pulmonary stenosis. The absence of the stenosis demonstrates that the ventricular septal defect is not a necessary anomaly. Cyanosis is marked and death follows right heart hypertrophy with failure. There were four cases in this group. One was a stillbirth and three died in the first decade, all under six months.

Table 3 lists the cases of congenital hearts due to disturbance in rotation and torsion of the embryonic heart.

(1) In these the arterial trunks are transposed. The aorta comes from the right ventricle and the pulmonary artery from the left ventricle. A septal defect or a patent ductus arteriosus is necessary for life. The right ventricle because of increased work becomes hypertrophied and fails. Cyanosis is marked.

(a) with closed ventricular septum, four cases (2.8 per cent). All died in the first decade, two under six months.

(b) with ventricular septal defect, four cases (2.8 per

TABLE 4
Disturbance in Adjustment of Aortic Arches, 31 Cases, 21.9 per cent.

Types	No.	Total	Per cent of	Ages in decades								
				SB	1	2	3	4	5	6	7	8
1. Coarctation of the aorta	25	17.7	—	17	—	4	1	—	—	—	—	—
(a) Infantile type	19	13.5	—	11	—	—	—	—	—	—	—	—
(b) Adult type	6	4.2	—	1	—	1	1	—	1	1	—	—
2. Patent ductus arteriosus	6	4.3	—	3	1	—	—	—	—	—	—	—

cent). All of these died in the first decade, all under one year.

In Table 4 are the cases in which the anomalies are the result of maladjustment of the aortic arches.

(1) Coarctation of the aorta results from improper development of the fourth left aortic arch and occurs as two types, the infantile and adult.

(a) The infantile type is rarely seen clinically, but in a series of autopsies where stillbirths are included, this type is more common than the adult type. In the infantile type, there is a narrowing of the entire isthmus of the aorta, that is, the arch between the ductus arteriosus and the left subclavian artery. Death usually occurs soon after birth or within a few months, because an adjusted circulation cannot be made after birth with sufficient rapidity to meet the circulatory requirements. Of this type in our series, there were 19 (13.5 per cent). Two were stillbirths, and 17 died in the first decade, all under five months.

(b) The adult type has a constricted area of the aorta just below or distal to the ductus arteriosus. The ductus seldom remains patent. Collateral circulation develops between the internal mammarys and the intercostals. The arch of the aorta is usually greatly dilated. Sometimes it may rupture. The left ventricle becomes enlarged and fails as in hypertensive hearts. The condition may persist for many years. Abbott¹ reported a case which lived to be 92 years old. Cyanosis is not normally present. In our series of 141, there were six cases of the adult type, 4.2 per cent. One was a stillbirth. Four died in the third decade and one in the fourth.

(2) The type of congenital heart called patent ductus arteriosus results from lack of development of thickened mounds within the wall of the ductus and a consequent failure of closure. The improperly developed arch is the left sixth. Hypertrophy occurs in both ventricles; in the left it is due to increased minute volume output; in the right it is due to increased pressure and volume in the pulmonary artery. A terminal cyanosis is present. There were six cases of patent ductus arteriosus, 4.3 per cent. Three died in the first decade, one in the second, one in the fifth and one in the sixth.

The cases in which congenital salsular deformities were found are grouped in Table 5.

(1) Aortic valve or orifice deformity was present in seven of the 18 cases (5 per cent). One had four aortic cusps and lived to be 76 years old. There were bicuspid aortic valves in two cases whose ages were 38 and 46 respectively. In one of these death appeared to be due to the valve deformity. Stenosis was present in two, one of whom died at four days and the other at eight years.

TABLE 5
Valvular Defects, 18 Cases, 12.8 per cent.

Types	No. Total	Ages in decades									
		SB	1	2	3	4	5	6	7	8	9
1. Aortic	7 5.0	-	4	-	-	1	1	-	-	1	-
2. Mitral	3 2.1	-	1	1	-	-	-	1	-	-	-
3. Tricuspid	4 2.8	-	3	-	1	-	-	-	-	-	-
4. Pulmonary	4 2.8	-	4	-	-	-	-	-	-	-	-
(a) without septal defects	2 1.4	-	2	-	-	-	-	-	-	-	-
(b) with atrial septal defect	1 0.7	-	1	-	-	-	-	-	-	-	-
(c) with both atrial and ventricular septal defects	1 0.7	-	1	-	-	-	-	-	-	-	-

Atresia of the aortic orifice occurred in two, of whom one lived but one day, the other four days.

(2) There were only three with mitral valve deformities (2.1 per cent). Two had stenosis of the valve. Of these, one was a stillbirth and the other lived for nine months. The third case had deformed cusps and multiple chordae tendinae. Mitral insufficiency resulted. This patient died suddenly at 54.

(3) Four cases of tricuspid deformity were observed. One had two cusps with low attachments and lived to be 21 years old. One had two cusps fused and died on the second day of life. There was stenosis in one who lived for one and one-half years. Atresia was present in one. Death occurred at two months.

(4) Stenosis or atresia of the pulmonary valve or orifice resulting from a maldevelopment of the bulbus is a fairly frequent anomaly, occurring either independently or with other defects. In addition to the cases described in the tetralogy of Fallot there were four (2.8 per cent).

(a) Two had no septal defects. Both died in the first decade.

(b) One had an atrial septal defect and lived but one month.

(c) One had both atrial and ventricular septal defects and lived only a month.

In these cases there is hypertrophy of the right ventricle and cyanosis is usually marked although this is less if a ventricular septal defect is present.

In Table 6, there is a small group of congenital anomalies consisting of primary changes in atria or ventricles, pericardial defects, and coronary artery anomalies.

(1) Five (3.5 per cent) of the above eight cases were grouped as congenital idiopathic hypertrophy. The actual existence of this condition is doubtful. The increase in heart weight, in most cases, appears to be due to replacement fibrosis of muscle and subendocardial tissue and not to actual muscular hypertrophy. A cardiac enlargement at times is due to deposits of glycogen in the heart

TABLE 6
Primary Changes in Atria or Ventricles (Six Cases, 4.3 per cent); Pericardial Defects (One Case, 0.7 per cent); Coronary Arterial Defects (One Case, 0.7 per cent).

Types	No. Total	Ages in decades									
		SB	1	2	3	4	5	6	7	8	9
1. Congenital idiopathic myocardial hypertrophy	5 3.5	-	5	-	-	-	-	-	-	-	-
2. Congenital dilatation of right ventricle	1 0.7	-	-	1	-	-	-	-	-	-	-
3. Pericardial defect	1 0.7	1	-	-	-	-	-	-	-	-	-
4. Coronary arterial defect	1 0.7	-	1	-	-	-	-	-	-	-	-

muscle (von Gierke's disease). All of the five died in the first decade, four under one year.

(2) In one, there was a marked dilatation of right ventricle without any visible cause.

(3) In one the heart lay outside an open pericardium.

(4) There was one case of congenital coronary artery defect. This was a boy of ten who died suddenly with symptoms of a typical coronary attack. There was a complete atresia of the left coronary orifice. The heart was not enlarged. The left coronary artery may arise from the pulmonary artery. This is commonly associated with the so-called idiopathic congenital cardiac hypertrophy. The association with the hypertrophy appears to be coincident and not causal.

SUMMARY

Congenital heart diseases comprise 9.04 per thousand autopsies. The incidence is slightly greater in females than in males.

The most common types are those which result from disturbed septal formation. Of these, the interventricular septal defect, either alone or combined with other defects, outnumbers by far all other types of congenital heart diseases.

Congenital heart anomalies are found primarily in children. Of the 141 cases, 18 were stillbirths, and 83 died in the first five months of life. One hundred eleven (78.7 per cent) were born dead or died before the end of the first year of life. The types which live into the upper decades are, mainly, adult coarctation of the aorta, patent ductus arteriosus, atrial septal defect and mildly deformed cusps of the aortic valve.

The effects of the various types of anomalies on the heart in bringing about cardiac failure are briefly described.

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1. Abbott, Maude E.: *Atlas of Congenital Cardiac Disease*, The American Heart Association, New York, 18, 1936.
2. Jager, B. V., and Wollenman, O. J.: *Anatomical Study of Closure of Ductus Arteriosus*, Am. J. Path. 18:595, 1942.

NORTHWESTERN PEDIATRIC SOCIETY

The Northwestern Pediatric Society, representing the states of Minnesota, North Dakota, South Dakota and Montana, held a meeting at Minneapolis April 14. The JOURNAL-LANCET was made the official publication of the Society. Beginning with the issue of May 1945 the Pediatric Issue of the official publication will carry the papers read at the scientific meetings of the Society throughout the year. The names of officers for 1944 appear on page 169.

Patent Ductus Arteriosus

M. J. Shapiro, M.D.†

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WITH the introduction of more modern diagnostic methods in the study of cardiae diseases it is no longer sufficient to make a broad diagnosis of congenital heart disease. In the majority of instances, especially with the aid of the x-ray and electrocardiograph and more recently with the aid of angiography, it is possible to diagnose the exact type of congenital lesion under consideration. The exact diagnosis is important, especially from the point of view of prognosis. This is particularly true in the case of simple uncomplicated patency of the ductus arteriosus now that this lesion can be cured by surgery.

Patent ductus arteriosus is one of the more common non-cyanotic congenital cardiac lesions. Strictly speaking it is not a congenital abnormality as the condition results from failure of the ductus to close immediately after birth. It is important to point out that two types of patency of the ductus occur. Failure of closure may accompany a developmental defect of the heart and the open ductus may be the only possible escape for the abnormal circulation. In such instances the flow of blood usually continues as in the fetal circulation; that is, blood flows from the pulmonary artery to the aorta, thereby resulting in cyanosis. Occasionally patency of the ductus occurs in developmental defects of the heart without cyanosis. In such cases it should not be difficult to diagnose the primary congenital defect. Patency of the ductus which accompanies developmental defects of the heart is not suitable for surgical treatment.

The other main type of patency of the ductus, the type with which we are concerned in this presentation, occurs as a simple failure of closure and is accompanied by no other cardiae abnormalities. For some reason, not yet definitely determined, the ductus fails to close as it normally should in the first few minutes of extra-uterine life. It is this type of case which lends itself to surgical ligation.

With some experience the diagnosis of simple patent ductus arteriosus is not difficult. These patients are not cyanotic; in most instances they are normally developed physically and have no other congenital stigmata so commonly found in congenital heart disease. In a small percentage of cases there is an accompanying stunting of growth resulting from the depletion of peripheral circulation due to the shunting of blood through the open ductus. Recent studies have shown that this shunt may total from 40 to 70 per cent of the entire circulating blood. Usually a thrill is palpable over the second and third left interspaces. The heart may or may not be enlarged, depending on the size of the ductus. Almost invariably, even though the total heart is not enlarged, there results enlargement of the pulmonary artery. Auscultation over the base of the heart will reveal the characteristic pathomonic continuous or so-called machinery

murmur. This murmur is heard best in the second and third left interspaces. The murmur is difficult to describe but is easily recognized after some experience. Frequently within the continuous murmur an accentuated second pulmonic sound is heard. The systolic phase of the murmur is transmitted throughout the anterior and posterior chest. In those cases in which there is considerable enlargement of the ductus not only is the pulmonary artery enlarged, but the branches of the pulmonary artery within the lungs are also enlarged and under the fluoroscope can be seen to pulsate. In such instances, a vascular type of murmur will also be heard especially throughout the posterior chest.

It is to be noted that the shunt in circulation is extra-cardiac and this results in a disturbance in blood pressure relationships. If the ductus is of considerable size the peripheral vascular findings will be similar to those found in aortic regurgitation; that is, there will be found a wide pulse pressure and the accompanying Corrigan pulse, capillary pulse, pistol-shock femorals, etc. In patients in whom the ductus is quite small the blood pressure findings may be within normal limits. Occasionally even in this type of case an increased pulse pressure may be detected after the patient is exercised. The extent of the pulse pressure is a fairly good indication of the magnitude of the shunt.

ELECTROCARDIOGRAPH FINDINGS

The electrocardiograph is almost invariably within normal limits. No marked axis deviation is found. There may be some slight slurring and occasional notching of the QRS, but by and large the electrocardiograph is within normal limits. Any marked abnormality in the electrocardiograph, especially a marked right or left axis deviation, should make one hesitate in concluding that simple patent ductus arteriosus is present.

ROENTGENOLOGICAL FINDINGS

X-ray studies are of considerable value not only in making the diagnosis of patent ductus arteriosus, but also in evaluating the advisability of surgery. Fluoroscopy is of especial importance because by this method one is able to determine the size of the pulmonary artery and is also able to determine whether or not the vessels in the lungs are enlarged and pulsating. The size of the pulmonary artery and its branches will correlate quite well with the magnitude of the shunt. X-ray films, if taken in various positions, will corroborate the fluoroscopic findings. Recently roentgenological studies with the aid of concentrated diodrast have been used in making differential diagnosis in congenital heart disease. Such studies make beautiful demonstrations and are highly interesting, but ordinarily unnecessary in the average case. It is well to point out that enlargement of the pulmonary artery occurs in many types of congenital lesions, but this finding alone is not sufficient to make a diagnosis of patent

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ductus arteriosus. A number of such cases, where the only positive finding was a harsh systolic murmur over the base of the heart accompanied by x-ray evidence of enlargement of the pulmonary artery, have been referred to us erroneously as cases of patent ductus arteriosus to be treated surgically.

DIFFERENTIAL DIAGNOSIS

There are several cardiac conditions which may be confused with patent ductus arteriosus. One of the most important, especially in infants and young children, is the so-called venous hum. This is also a continuous murmur heard over the base of the heart. It is usually not as loud as the characteristic machinery murmur. The venous hum is generated in the vessels of the neck, may be heard over the base of the heart, and not infrequently is heard as far down as the apex. The murmur can be obliterated by moving the child's head from side to side or by applying pressure with the finger on the neck vessels. Of course none of the other findings of patent ductus arteriosus will be present.

Occasionally the diastolic murmur of aortic regurgitation will simulate the machinery murmur. In aortic regurgitation, however, there is invariably a pause between the systolic and diastolic murmurs. These murmurs are usually heard lower down along the left border of the sternum. The blood pressure findings may be exactly the same as in patent ductus arteriosus. X-ray studies, however, will reveal no enlargement of the pulmonary trunk or vessels in the lungs. The enlargement of the heart in aortic regurgitation will, of course, involve primarily the left ventricle producing a contour which is distinctly different from that found in patent ductus arteriosus. The electrocardiograph in well developed aortic regurgitation will reveal a marked left axis deviation.

Patients with interauricular septal defect commonly reveal x-ray changes of the heart which simulate the findings in patent ductus arteriosus. On fluoroscopy the contour of the heart may suggest that found in patent ductus arteriosus; however, in most instances the heart is considerably larger and more rounded in patients with interauricular septal defects. The pulmonary vessels are also usually much larger and pulsate much more in the septal defect. The leak in auricular septal defect is intracardiac in contrast to that in patent ductus. The peripheral vascular findings in interauricular septal defect are normal in contrast to the characteristic findings in patent ductus arteriosus. There should be no difficulty in making a differential diagnosis between these two lesions.

As has already been stated various other types of congenital heart lesions are commonly accompanied by enlargement of the pulmonary artery. Such localized increase in size of the pulmonary trunk in itself is not enough to make a diagnosis of a patent ductus.

The diagnostic criteria in patent ductus arteriosus may be summarized as follows:

1. History of heart disease from birth or early childhood.
2. No cyanosis or clubbing of the fingers.
3. Stunting of growth in a small percentage of cases.
4. Probable thrill over the pulmonic area.

5. Characteristic machinery murmur.
6. Increased pulse pressure.
7. Enlargement of pulmonary artery and branches.
8. Normal electrocardiograph.
9. Probable enlarged heart.

INDICATIONS FOR SURGERY

As has been shown in previous studies, the great majority of patients with patent ductus arteriosus develop some cardiac difficulty in early adulthood. About 40 per cent are known to develop subacute bacterial endarteritis in early adulthood. About an equal number die of congestive heart failure and a relatively small group die of rupture of the ductus or other complications. There is no doubt that an occasional patient lives out his normal expectancy. We have seen one such case in our experience and there are a number of others reported in the literature. It must be admitted, however, that it is quite rare to examine a patient with patent ductus arteriosus over the age of forty. For these reasons it is our opinion that where the diagnosis of uncomplicated patent ductus can be made, surgery should be seriously considered. This is particularly true in young people over the age of two. The diagnosis in infants under this age is usually difficult and hazardous. In such young individuals with a definite diagnosis if there is stunting of growth, increased pulse pressure, x-ray evidence of enlarged pulmonary artery, and enlarged pulmonary vessels, surgical ligation is indicated. On the other hand, in those instances where no evidence of cardiac strain can be made out one is justified in keeping such patients under observation and delaying surgery. It is agreed by all those surgeons who have had experience with this lesion that it is much easier to operate on the younger children. In adults calcareous deposits and thickening of the ductus commonly occurs and ligation in such instances is much more dangerous than in the young child with soft pliable vessels. In patients who develop subacute bacterial endarteritis, surgery should be carried out at once without attempting to sterilize the blood with chemotherapy. Before the introduction of surgery for this lesion there was a 100 per cent mortality in the infected cases. In the past several years 50 per cent of such infected patients have been cured by surgical ligation.

The operation for the cure of patent ductus arteriosus is a difficult one and requires a thorough knowledge of the anatomy and physiology of the heart and its vessels. The operation also requires the aid of a trained anesthetist. Surgical ligation should certainly not be attempted except by those surgeons in the larger clinics who have had experience with chest surgery.

In Minneapolis we have referred 19 patients with patent ductus arteriosus for surgical treatment. These patients have ranged in age from three to nineteen. The ligation has been successfully carried out in 16 instances. Two patients died of hemorrhage, either at the time of operation or soon afterward. One child, nine years of age, developed a blood stream infection about two months after operation, from which she subsequently died. In one instance, the first patient, a vessel was tied which was probably not the ductus. This boy is none

the worse for his surgery and will probably be operated on at a later date. The clinical results in the successful cases have been very satisfying and quite remarkable. These patients who in many instances have had considerable enlargement of the heart and were restricted in their activities have now been completely cured by surgery. We have under observation in our clinic 61 patients with patent ductus arteriosus and we propose to continue to refer those patients for surgery who show any evidence of cardiac difficulty.

Throughout the world there have by this time been several hundred patients operated for patent ductus arteriosus. The immediate mortality has been less than 10 per cent in the uninfected cases. As a result of the last few years of experience it is certain that fewer sur-

gical mishaps will occur. There have been a number of new innovations in surgical technic and it can be expected that the ultimate surgical mortality rate will be considerably below 10 per cent. A follow-up study of all cases operated throughout the world is needed at this time.

CONCLUSIONS

1. An exact diagnosis in congenital heart disease is now possible.
2. A preoperative diagnosis of uncomplicated patent ductus arteriosus can be made without error.
3. Those cases who show any evidence of cardiac strain should be treated surgically.
4. All patients with subacute bacterial endarteritis should be given the opportunity of surgery.

Preventing the Rheumatic Recrudescence*

A Consideration of the Several Modes of Prophylaxis Available to the Rheumatic Patient

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INASMUCH as no specific organism has been found to be directly responsible for the disease syndrome we recognize as acute rheumatic fever, it is not surprising that we have no specific toxoid or vaccine to prevent it. That a close connection exists, however, between rheumatic fever and the hemolytic streptococcus is generally accepted. More recently, the knowledge of this relationship has led to the development of certain therapeutic measures directed against the recurrence of subsequent rheumatic attacks in susceptible individuals. We know that recurrences constitute one of the most characteristic features of the disease, and, as Huse⁵ has pointed out, deaths in children occur from active rheumatic infection rather than from mechanical damage to the heart.

In the past, our efforts to prevent recrudescences have consisted largely of emphasizing certain very general hygienic fundamentals, because we know that the incidence of rheumatic fever and rheumatic heart disease is highest in persons of those lower economic strata wherein these basic principles are more often violated. Thus damp housing, crowded living, malnutrition, inadequate clothing and the like all predispose the rheumatic individual to further trouble. Hence we have advocated a well-balanced diet, high in vitamins B and C, a warm, sunny climate where protection from dampness and chilling is possible, and the avoidance of respiratory infections. We have insisted upon a prolonged convalescence, with bed rest for some time after all clinical and laboratory signs of rheumatic activity have disappeared.

To realize that such measures have been pathetically inadequate, we have only to know that rheumatic fever kills more children of school age than any other disease. In order to reinforce such a program, numerous investigators have adopted more specific methods with a con-

siderable degree of success. These are: (1) immunological, and (2) chemotherapeutic.

Specific Immunization: Wasson and Brown,¹ reporting in the *Journal of Pediatrics* for July, 1943, describe their experiences with a hemolytic streptococcus toxin, work which had been suggested by the efforts of the United States Public Health Service over a number of years. Wasson and Brown used a tannic acid precipitated toxin of N. Y. strain No. 5 hemolytic streptococcus, administering this material to rheumatic individuals in the following manner:

The first year, doses of 5,000, 8,000, 10,000 and 12,000 skin test doses, contained in .1 cc. of the material, were given. The final dose of 12,000 STD was then to be repeated semi-annually. No generalized, and only mild local, reactions were observed. Their figures are as follows:

	Treated	Controls
1940-41 Total Season Cases	42	33
Recurrences	0	11 with 3 deaths
1941-42 Total Season Cases	31	27
Recurrences	2	6

This method would seem to be of some consequence. These investigators also observed that there was a definite decrease in subclinical rheumatic symptoms in the treated group.

PROPHYLACTIC CHEMOTHERAPY

1. Sodium Salicylate. The similarity of the manifestations of acute rheumatic fever to those of serum sickness both clinically and histologically was described by Von Pirquet. The success of salicylatization in preventing the development of serum sickness suggested to Coburn and Moore² that a like result might be obtained in rheumatic disease. They describe rheumatic fever as occurring in three phases: I—a streptococcal respiratory infection, II—an incubation period of 10 to 14 days, III—the at-

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THE RELATION OF RHEUMATIC RECIDIVISCENCES TO SALICYLATE PROPHYLAXIS

	RHEUMATIC SUBJECTS DEVELOPED RECIDIVISCENCES	RHEUMATIC SUBJECTS ESCAPED RECIDIVISCENCES	TOTAL
Subjects received salicylates	1	45	46
Subjects received no salicylates	57	82	139
Total	58	125	183

After Tate's correction for continuity, chi square = 21.3

The value required for significance ($P = 0.01$) is 6.6

tack of rheumatism proper, lasting weeks or months. These workers have demonstrated that the serum complement diminishes during Phase III, and that circulating precipitins appear during Phase III.

They suggest the administration of 4 to 6 gm. daily of sodium salicylate (adult dose) during Phase I and for one month thereafter, as a method of avoiding the occurrence of Phase III. Salicylate given in this manner will prevent the formation of the precipitins mentioned above, but does not, however, modify the antistreptolysin response.

Prophylactic Sulfonamides. This method of preventing rheumatic recurrences is based on the assumption that by maintaining a certain level of sulfonamide in the blood stream, the incidence of streptococcal infections in the susceptible individual can be materially modified, and hence the occurrence of subsequent rheumatic flareups following these infections.

At first, rather larger daily doses of sulfa were employed than are now in general usage, a blood level of 2 to 3 mgm./percent now being considered adequate. A daily dose of 15 to 20 grains of sulfanilamide is usually sufficient to produce such a level in the average child. In the temperate zones the drug is given continuously during nine or ten months of the year, being abandoned only during the hot summer season. That such a program does prevent streptococcus infections has been shown by a carefully controlled study by Kuttner and Reyersbach,⁴ using 208 children in a convalescent cardiac home.

We have utilized prophylactic sulfonamide therapy in the Pediatric Cardiac Clinic of the University of Minnesota Hospital with results similar to those of other workers, over a period of from 1938 to 1943. The following table summarizes the figures obtained by some of the groups:

Our Minnesota study differs from that of Kuttner and Reyersbach previously mentioned in that most of our patients reside in surroundings far less happy than those of a cardiac hospital. These children, who come in from various areas of the state, are usually in poor economic circumstances. The factors of frequent exposure to infections under crowded home conditions, chilling, non-chalance regarding respiratory infections, very ordinary diet, et cetera, are important, and for these reasons we feel our figures to be quite significant, believing that if recurrent infection can be prevented in this group, it can in any. It is perhaps of interest to note the number of deaths resulting from rheumatic fever and rheumatic heart disease in pediatric patients at University Hospital during the last three years, when the majority of rheumatic children have been receiving sulfonamide prophylaxis.

The Relationship of Prophylactic Sulfanilamide to Rheumatic Recidiviscences and the Occurrence of Streptococcal Pharyngitis in a Group of Children

#	Year	Control			Sulfanilamide			#
		Strep Pharyng.	Definite Rheum. Rec.	Dubious Rheum. Rec.	Pharyng.	Def. Rec.	Dubious Rec.	
54	1938-41	30	14	4	1	0	0	54
50	1941-42	18	9	1	1	1	0	50
104		48	23	5	2	1	0	104

From Kuttner and Reyersbach., J.Clin.Invest. XXIII:79, Jan 1943

laxis, as compared with the years 1938 to 1940 when we were first testing the drug in but a few patients:

Year 1938 1939 1940 1941 1942 1943

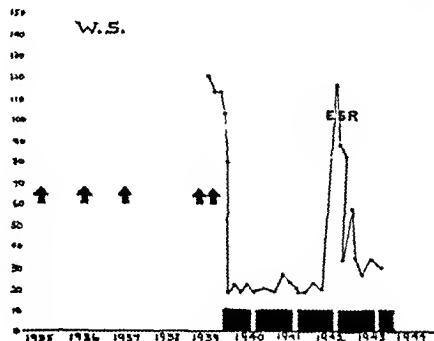
Deaths from rheumatic fever 5 9 13 1 3 2

The actual number of rheumatics seen during 1941 to 1943 is markedly increased over those followed in 1938-1940.

As an example of how effective this type of prophylaxis may be, it may be helpful to review the case history of W. S. This patient was 10 years old when first admitted to University Hospital on April 28, 1939, because of an acute rheumatic episode characterized by joint pains, chest pain and fever, all of two weeks' duration. His history was remarkable in that his first rheumatic attack occurred in 1935, at six years of age; the second in 1936, and the third in 1937.

When seen by us in his fourth attack, he showed an erythema rheumaticum. Nodules appeared about six weeks after admission. He was discharged on June 25, 1939, somewhat improved but still on complete bed rest. In August he again developed joint pains, fever, fatigue, and precordial pain, but by October this spurt of activity subsided. He was then started on 2 gms. sulfanilamide daily and no further attacks occurred.

He has now received sulfanilamide during the seasons of 1939-40, 1940-41, 1941-42, 1942-43, and is again on



the drug this year. He has no evidence of rheumatic activity. In May, 1942, he had a mild attack of acute appendicitis which subsided without operation. Sulfanilamide was continued during this time. In July, he experienced a second attack and an acutely inflamed appendix was removed. His sulfanilamide was continued throughout this illness without recurrence of rheumatic activity, although his sedimentation rate rose to 120 mm. at the time of his acute appendicitis. Otherwise it has been normal throughout.

SUMMARY DATA CONCERNING RECURRENCES IN PATIENTS WITH RHEUMATIC FEVER OBSERVED AT VARIOUS GROUPS OF HOSPITALS: CONTROL AND SULFONAMIDE TREATED

Thomas, French & Fischman		Cohen & Bass		Mossell & Baskin		Goldschmid & Rosenow		Chandler		Union of New York Hospitals	
Year	Season	Pass	Fail	Pass	Fail	Pass	Fail	Pass	Fail	Pass	Fail
Total	Season Cases	77	150	180	245	7	24	104	104	45	41
Recurrences		2	21	31	33	4	1	20	11	5	7

Total Season Cases: All Observations: 202. Recurrences: 41. Sulfonamide: Controls: 14. Deaths: 2 From Endocarditis, 2 From Endocarditis, 2 From Rheumatic Fever. 11 Deaths: 1 From Polychondritis, 11 From Rheumatic Fever. 61 Deaths: 3 From Rheumatic Endocarditis and 58 From Rheumatic Fever. 61 Deaths: 3 From Acute Rheumatic Fever.

A careful analysis of our cases in whom recurrences developed in spite of sulfonamide therapy reveals that in most cases the drug was being taken irregularly, inadequately, or had been temporarily discontinued by the patient. Factors to be considered here include:

1. Failure to understand that medication should be continuous.
2. Indifference of patient or parents.
3. Transportation difficulties, such as gas rationing, which may prevent the patient from keeping clinic appointments to renew prescriptions, et cetera.
4. Stoppage of the drug by the local physician who is not familiar with the rationale of our treatment.

That irregular dosing fails to achieve the desired result is evidenced by W. D., whom we first saw on February 27, 1940, at the age of 12 years. At 7 years, he had suffered an attack of rheumatic polyarthritis, dyspnea, and orthopnea, which kept him in bed for six months and left him with mitral heart disease. After this, he enjoyed normal activity, but had several episodes of fleeting joint pains and fatigue. When admitted in February, 1940, he was suffering from a severe recrudescence. In addition to mitral disease, he had a transient bilateral pleural effusion and a probable pericardial effusion. Recovery was satisfactory.

Sulfanilamide was started in the fall of 1940 and given all season with no recurrent rheumatic activity. He also took sulfanilamide during 1941-42, and similar recommendations were made for the 1942-43 season. In the spring of 1943, the child developed definite signs of rheumatic activity and was hospitalized because of addi-

tionally heart damage. At this time we learned that there were intervals of two to four weeks throughout the winter during which sulfanilamide was not taken at all. About three weeks prior to the onset of this attack, he suffered an upper respiratory infection at a time when he was not taking the drug.

This appears to be an example of the failure of protection when the drug is not taken regularly—the same

result which may occur when a diabetic fails to take his insulin.

Choice of Sulfonamide: For long continued administration of a sulfonamide drug, such as is necessary in the prophylaxis of rheumatic recurrences, sulfanilamide, we are convinced, is the drug of choice, at least insofar as children are concerned. It is our experience that children and adolescents tolerate this drug very well—possibly better than adults. We have had to discontinue it in very few instances.

Among factors to be considered in the choice of a drug is the expense to the patient. As has been mentioned earlier, our patients are of the indigent or low income group, and it is to our mutual interest to prescribe an inexpensive preparation. The cost of sulfanilamide is a fraction of that of some of the other compounds.

Sulfadiazine, now so popular in the treatment of acute infections, is not, in our opinion, the best for this purpose. Certain investigators report abnormal effects on the kidneys and urinary tract in as high as 30 per cent of patients given the drug. These vary from a few urinary crystals, to gross hematuria and even anuria resulting from ureteral blockage by the crystals. A drug with such potentialities seems hardly the one for prolonged usage. Sulfathiazole appears to have no advantage over sulfanilamide in the treatment of streptococcal infections which would justify its greater cost for routine use. We have not used sulfametazine in our rheumatics as yet.

The use of any sulfonamide presupposes intelligent handling. We always check the blood count on the fourth day of administration, on the seventh and ninth days, and at weekly intervals for the first month, then relying on subsequent clinic visits for check. The local physician is usually most helpful in making these early blood counts.

Minimal signs of intolerance, such as rash, gastric distress and the like, usually do not necessitate withdrawal, but do mean that careful watching is essential. It may be necessary to reduce the size of the dose until it can be better tolerated. Even leucopenia may be but temporary, and may not occur subsequently if the drug is begun again in sufficiently small doses.

We are sometimes questioned by our colleagues in internal medicine regarding the prolonged use of any sulfonamide. They are particularly concerned about the possibility of sensitization phenomena which might hinder the subsequent administration of the drugs in the event of intercurrent infection such as pneumonia or meningitis. It is our considered judgment that such disease is far less likely to be responsible for the death of the rheumatic child than repeated attacks of carditis, which are statistically so much more probable.

L. E. is representative of the group of patients who require unusually careful management. Had we had sufficient patience and courage to experiment more fully with the various sulfonamides instead of abandoning our attempts at prophylaxis we might have prevented the tragic fatal septicemia.

This patient was first seen in January, 1939, with a history of rheumatic fever for three years, chiefly characterized by numerous episodes of polyarthritis. She was

THE RELATIONSHIP OF REGULARITY IN TAKING THE PROPHYLACTIC DRUG TO RHEUMATIC RECURRENCES

	T	NUMBER OF RECURRENCES ON DRUG						I
		IV	VII	IX	IX	X	XII	
REG.	REG.	REG.	REG.	REG.	REG.	REG.	REG.	REG.
# of cases	2	—	9	—	2	3	31	7
Recurrences	0	—	0	—	0	0	6	1

DURATION OF RHEUMATIC HEARTDISEASE

hospitalized in October, 1939, for an acute attack, during which she sustained mitral valve damage. Tonsillectomy was performed in August, 1940. In October, 1941, she was started on sulfadiazine, but this was discontinued in December because the patient could not afford the drug and because of mild gastrointestinal symptoms. Sulfathiazole was given from December, 1941, to February, 1942, but was discontinued because of leucopenia.

The patient did not return to Pediatric Clinic, but was admitted on the adult medical service in July, 1942, with a subacute bacterial endocarditis. She was given large doses of sulfadiazine, which caused no leucopenia, but which was later discontinued because of diminished urinary output and crystals in the urine. Her blood culture remained persistently positive and she showed no improvement.

She died at home in October, 1942.

SUMMARY

A method does exist which, although not free from danger and requiring close medical supervision, may reasonably be expected to prevent many rheumatic recur-

rences, and in turn materially affect the mortality and morbidity associated with this disease. This method consists of the prevention or attenuation of streptococcal infections by the continued maintenance of a low blood level of a sulfonamide.

Alternative methods of prophylaxis—namely, immunization against streptococci and the control of streptococcal infections with salicylates—are also available for patients who do not tolerate the sulfa drug for one or another reason.

It is possible that one of these methods, or a combination of both, may prove safer and as effective as sulfonamide therapy.

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Diphtheritic Myocarditis in which the Clinical Diphtheria Was Missed

Case Report

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THE patient, a five-year-old child, was admitted to the hospital on December 29, 1943, complaining of lethargy, intermittent epigastric pain, and anorexia for three weeks; pallor for two weeks; and edema of the face for three days.

This patient was perfectly well until she had a cold on December 1 from which she apparently recovered in four days. Diphtheria cultures were negative but on December 6 her sister was admitted to the hospital with clinical diphtheria. Repeat nose and throat cultures were negative for this patient. On December 10 she developed the "flu" which was characterized by running nose, anorexia and malaise. Just as she was recovering from the "flu" she had so-called "mumps" on the left side and although the swelling disappeared in two weeks her general condition remained poor. She gradually became more lethargic and anorexic and pallor became marked. She also complained of epigastric pain which was intermittent, without radiation or localization and of two to three minutes duration. No change in bowel habits had been noted during the last month and no nausea or vomiting had been present. Three days before admission puffiness of the face was noted. No urinary complaints except for albuminuria last September in a routine physical examination. A non-productive, brassy cough was present on admission and which the father stated although more

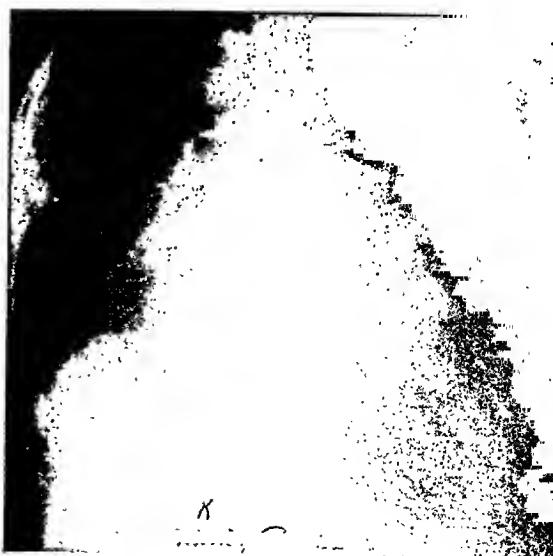


Fig. 1

frequent (20 to 30 times an hour) at the present time, had been noted for over a period of approximately one year and had been considered a habit. There was no history of red, swollen, tender joints and during the past

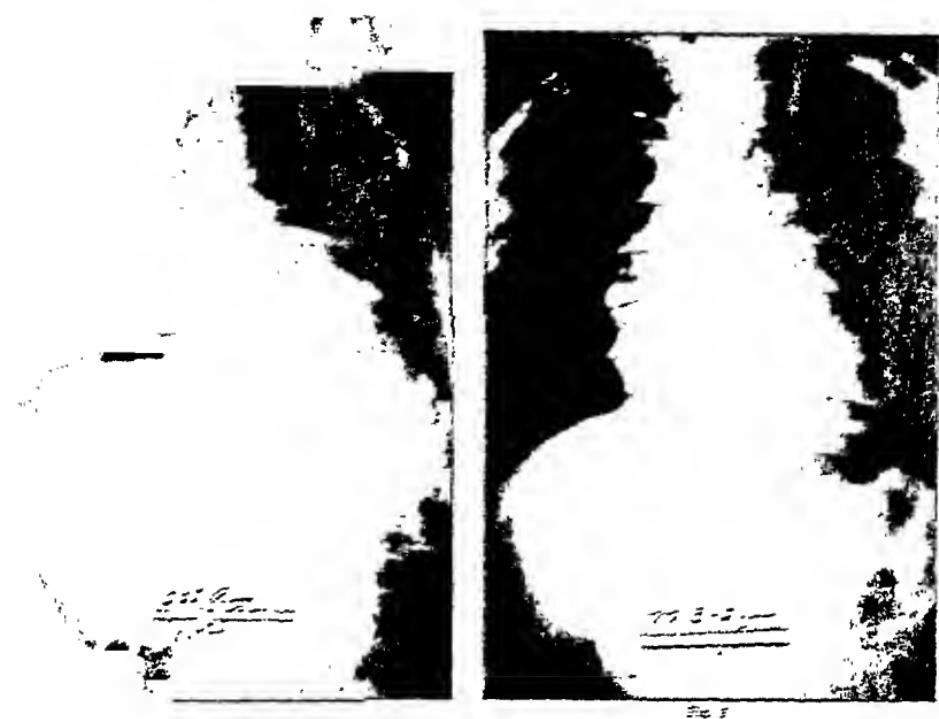


Fig. 3

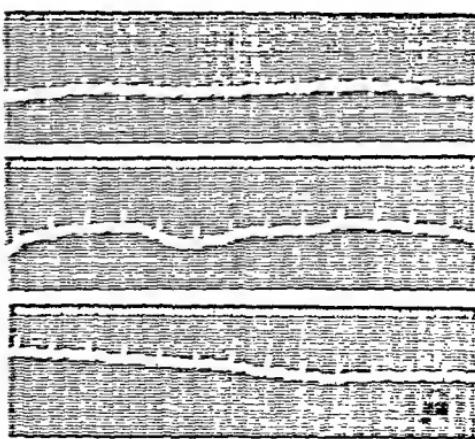


Fig. 4

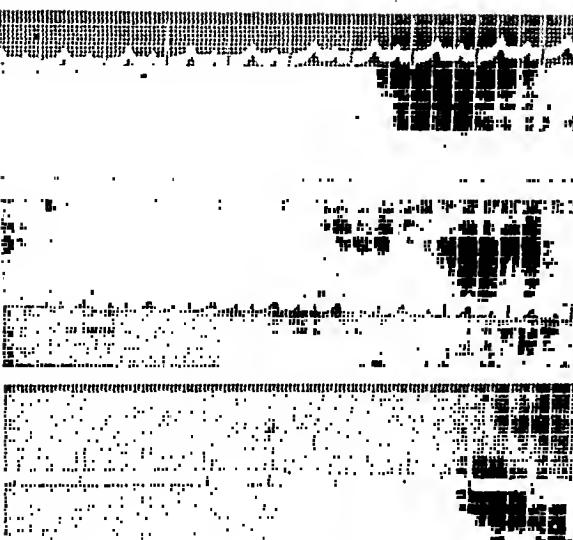


Fig. 5.

Her condition became worse and on January 2, 1944, fine moist rales were heard posteriorly in the bases of the lungs and the blood pressure was 55/30. She was digitalized with 6 cc. of cedilanid in divided doses and maintained on 1 cat-unit of digitalis leaf daily. Within twenty-four hours the rales were disappearing and the blood pressure had risen to 95/70 and within forty-eight hours enlargement of the liver had disappeared. On January 6, 1944, a nasal quality to the voice was noted and by January 13 she had difficulty swallowing liquids and food without regurgitation. On January 18 the extremities showed marked weakness, absent reflexes but no paralysis.

Improvement was gradual and she was discharged on January 9, apparently fully recovered.

DISCUSSION

The clinical diphtheria in this case was missed even though the child was seen by a physician at least three times during the acute illness and even though repeated cultures for diphtheria were taken. On admission to the hospital the diagnosis was not accepted without question until other complications of diphtheria were manifested, namely nasal voice, nasal regurgitation, severe weakness of the extremities with absent reflexes. Burkhardt and co-workers¹ found that many cases showing nerve involvement had an accompanying toxic myocarditis and usually the myocarditis appeared first. The negative diphtheria cultures even though reported from different laboratories should not have been relied upon to the extent that they were because it is known that occasionally cultures will be reported negative in a clinical diphtheria and the physician in this case must have suspected diphtheria because cultures were taken when she had her sore throat.

The diphtheria heart disorders³ fall into the three following groups: (1) lesions of the heart musculature; (2) abnormalities of rhythm; (3) interference with conductivity. The onset of myocarditis in this case is not known but on admission the electrocardiographic evidence of myocarditis included changes in the T wave, lengthened P-R interval, and low voltage in all leads. The QRS complexes gradually increased in height and one month after digitalis was discontinued the electrocardiogram was within normal limits (Figs. 5 and 6). It has been found that the protodiastolic gallop is the most common change of rhythm although any irregularity can take place. Death usually occurs from either (1) gross myocarditis, (2) acute complete heart block, or (3) ventricular tachycardia or fibrillation. Signs of grave prognostic importance are abdominal pain and vomiting

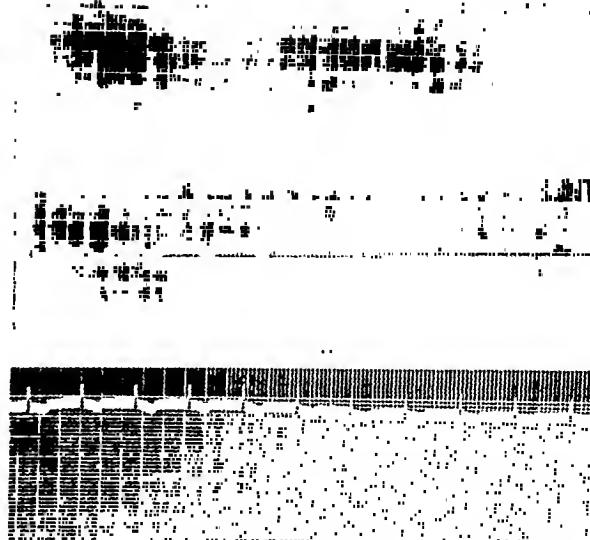


Fig. 6.

with falling pulse rate and blood pressure; albuminuria and an enlarged and tender liver, pronounced cervical adenitis, pallor, apprehension and restlessness.¹⁰ Many of these signs were present in this child and as she became worse with increasing evidence of decompensation digitalization seemed imperative.

The use of digitalis in diphtheritic myocarditis is questioned by many^{4,7,9,11} because of the nature of the pathological changes^{8,6} although some do say that it can be used with caution. Wesselhoeft² states "that the functional disturbance here can be so similar to that observed in acute digitalis poisoning that one would hesitate to consider any dosage that would fulfill the term of 'digitalization' since further blocking is to be feared." Doses of digitalis, it is believed, must be small and therefore most clinicians advise against employing it at all although there is evidence that the drug is of benefit after the heart has been poisoned with diphtheria toxin.¹¹ Wesselhoeft² does believe, however, if in the later weeks of convalescence signs of decompensation, as we had in this case, appear, digitalis should be tried cautiously. This patient responded remarkably to digitalis in doses that many would consider prohibitive. The progress made was followed by electrocardiograms and by x-ray examinations. The heart returned to normal size clinically and by roentgenogram (Figs. 2 and 3).

CONCLUSION

A case of diphtheritic myocarditis has been presented in which repeated cultures for the Klebs-Loeffler bacillus were negative. When cardiac decompensation became more marked she was digitalized with cedilanid and maintained on 1 cat-unit of digitalis leaf daily. The clinical response was very good and she was discharged from hospital apparently well, two months after admission to the hospital.

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New Interpretations of the Allergy Cutaneous Tests*

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ALTHOUGH many teachers of allergy have emphasized that a thorough history of the case and the trial elimination of foods from the diet and inhalants from the environment could lead to a solution of the allergic child's difficulties, most physicians still feel that skin testing is the shortest path to the discovery of the substance or substances causing the allergic diseases. This assumption is taken in spite of the fact that on the whole cutaneous tests have not given the clinician satisfactory results. However, the occasional case which is accurately diagnosed by skin testing maintains the interest in the procedure.

More research in the laboratory may bring new diagnostic aids in allergy but this work must await the end of the war and meanwhile the greatest advantage must be taken of the present methods. For the past twelve years all children who have been treated for an allergic disease at the University and Minneapolis General Hospitals have received the allergy cutaneous tests. Not only was this done to help determine the causative agent or agents but also to make clinical observations of the precautions which were necessary to obtain the best results.

First consideration was given to the material to be used for testing. After trying various types it was found that the liquid extracts of foods and inhalants (animal emanations, dusts, etc.) furnished in glass capillary tubes by a few manufacturers of biological products were most satisfactory. Care had to be taken to use extracts prepared in such dilutions that they did not produce positive reactions in nonallergic controls. The number of different allergens first chosen was around forty but this figure was gradually increased until a group of allergens was obtained which could be considered a complete set for the child. The pollens were added in the powdered form. Bacterial allergens and extracts of fungi and molds were not considered important enough for routine testing. The distribution of the allergens is shown in Table 1. The foods were listed first not alphabetically but in groups, the constituents of which are related especially from the allergist's viewpoint. The inhalants followed the foods, and the pollens were last. They were made up into sixteen groups representing approximately fifty-four different pollens and the groups are listed in the order of the pollinating dates.

Next, the method of application was checked. Since children were being studied, intracutaneous testing was not long employed chiefly because the quantity of material introduced into the skin varied too much. The child would struggle just enough to make it practically impossible to place the allergenic extracts at the same depth in the skin for each test and to measure accurately the amount injected. The so-called scratch technic was found to be easier to perform. With this method the skin of the back was gently cleaned with the ether-alcohol mixture or acetone. No vigorous rubbing of the

epidermis was permitted. Scratches, one-eighth to one-fourth of an inch in length, were made with any sharp instrument. The extracts were carefully rubbed into the scarifications. Later this procedure was reversed in that the fluid was applied first and a scratch was made through each droplet. The children did struggle and a uniformity in the scarification was not obtained. Some were superficial, some were deep. This led to a lack of consistency in the allergic reactions.

The pressure-puncture technic was substituted. With this procedure an ordinary steel needle was employed to break the epidermis. It was held almost horizontal at the surface of the skin and the point was pressed down several times. At first this method was considered to be fairly satisfactory but later it was observed that the epidermis was not broken uniformly. For some tests the allergen was properly introduced, but for others the pressure exerted was too light to cause much abrasion and subsequent introduction of the allergen.

The puncture technic was finally tried. A drop of each allergen was placed on the skin and then several direct punctures of the epidermis were made through the droplets being careful to keep all punctures close together and to avoid going too deep in order to prevent bleeding. This method gave good results. Although originally four to eight punctures were employed the number was soon reduced to a range from one to four. It was discovered that a preliminary examination of the child's skin gave the best clue as to the number of punctures to be used. In some cases the epidermis was apparently easily disturbed and one puncture was sufficient, in other instances four punctures were necessary to elicit the best results. However, the majority of the children gave consistently the same positive reactions upon repetition of the tests when two punctures were employed. Clinical studies now in progress may modify this in that the most accurate sensitivities of the patient appear to be revealed by the reactions obtained when three punctures are used for foods, two for inhalants, and one for pollens. Since the punctures were made close together and no blood was drawn, the tests were considered to be more uniform than those performed by any other method. This was reflected in the results as shown in Table 2. The value of the positive reactions in determining the cause or causes of allergic diseases was greatest with the puncture method of cutaneous testing.

In spite of the efforts to make the allergy tests as reliable as possible, multiple reactions which were not all of clinical significance occurred frequently. The age of the patient was the determinant as to the best procedure to follow. In infancy and early childhood, the food allergens were extremely important and in the latter part of the preschool period the foods and inhalants became equally important. There was thereafter an increasing sensitivity to all of the inhalants during the school years. The pollens became very important at puberty.

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TABLE 1

Allergens for Cutaneous Testing in Children

1. Control	40. Beet	Inhalants, etc.
Ingestants	41. Spinach	1. Cat
2. Beef	42. Buckwheat	2. Cow
3. Lamb	43. Rhubarb	3. Dog
4. Pork	44. Sweet potato	4. Horse
5. Egg white		5. Sheep (wool)
6. Milk	45. Figs	6. Goat
7. Codfish	46. English walnut	7. Hog
8. Halibut	47. Hazelnut (filbert)	8. Rabbit
9. Herring	48. Cashew	9. Orris root
10. Salmon	49. Brazil nut	10. Feathers (mixed)
11. Chicken	50. Apple	11. Cotton seed
12. Carrot	51. Pear	12. Kapok seed
13. Corn	52. Almond	13. Flax (linseed)
14. Oat	53. Apricot	14. House dust
15. Rice	54. Cherry	15. Glue (fish)
16. Rye	55. Peach	16. Pyrethrum
17. Wheat	56. Plum	17. Lycopodium
18. Celery	57. Prune	18. Tobacco
19. Peppers	58. Blackberry	Pollens
20. Potato	59. Red raspberry	1. Maple (Aceraceae)
22. Tomato	60. Strawberry	2. Birch (Betulaceae)
23. Kidney bean	61. Blueberry	3. Cottonwood (Salicaceae)
24. Lima bean	62. Cranberry	4. Elm (Urticaceae)
25. Navy bean	63. Currants	5. Bulrush (Cyperaceae)
26. String bean	64. Grapefruit	6. Ash (Oleaceae)
27. Pea	65. Lemon	7. Oak (Fagaceae)
28. Peanut	66. Orange	8. Grasses (Gramineae)
29. Soybean	67. Grape	9. Walnut-Hickory (Juglandaceae)
30. Cucumber	68. Raisin	10. Plantain (Plantaginaceae)
31. Pumpkin	69. Banana	11. Dock-Sorrel (Polygalaceae)
32. Squash	70. Olive	12. Alfalfa-Clover (Leguminosae)
33. Asparagus	71. Pineapple	13. Pigweed (Amaranthaceae)
34. Garlic	72. Cocoanut	14. Russian Thistle (Chenopodiaceae)
35. Onion	73. Chocolate	15. Wormwood-Sage (Compositae)
36. Cabbage	74. Coffee	16. Ragweed (Ambrosiaceae)
37. Cauliflower	75. Tea	
38. Turnip	76. Cinnamon	
	77. Cloves	
	78. Ginger	
	79. Mustard	
	80. Tapioca	

Furthermore, in connection with the foods, it was necessary to consider the disease before any of the positive reactors were removed from the diet. Dairy products such as milk, cheese, and eggs were usually of greater significance in eczema than other positive reacting allergens such as cereal, fish, vegetable or fruit. The asthmatic child required first consideration of meat, fish or nuts even though other food allergens gave positive reactions. In allergic rhinitis cereals, dairy foods and chocolate were most important. Urticaria gave the poorest response to cutaneous testing but if the fruit, vegetable or nut allergenic extracts gave positive reactions, then those results were usually of definite clinical value. Table 3 illustrates roughly the relative significance of the positive reacting food allergens in the different allergic diseases.

The foods presented another problem. Often within the groups listed in Table 1, there were many positive tests of various intensities, the strong reactors being less important than the weak ones. Rice and rye were apt to yield larger reactions than wheat. However, wheat had to be completely eliminated from the diet for the best results while the child could eat a little rice or rye without any increase in symptoms. Peppers often reacted more strongly than tomato, although the latter was more important. Cucumber frequently produced a weak re-

TABLE 2

The Clinical Value of the Results of Cutaneous Testing in Children by Various Methods
(All ages and Allergic diseases are represented)

	Scratch		Pressure-Puncture		Puncture	
	Cases	Pct.	Cases	Pct.	Cases	Pct.
Good	30	19	91	30	99	41
Fair	44	28	97	32	91	36
Poor	83	53	115	38	58	23
Total No.	157	100	303	100	248	100

TABLE 3
Clinical Value of Positive Reacting Food Allergens

	Infantile Eczema	Chronic Eczema	Asthma Infant	Child	Allergic Rhinitis	Chronic Urticaria
Meat			+			
Dairy Prod.	++	++	+--	+--	+	
Cereal	+			+--	++	
Fish	+--		+--	+		+-
Vegetable		+		+--		++
Fruit	+(Juice)	+				+++
Nuts				+	+--	+
Chocolate					+	+--
Spices and Flavors					+--	+-

action while squash yielded a markedly positive test. Nevertheless, the cucumbers if eliminated from the patient's diet gave the most satisfactory clinical response. Apricot and peach were more significant than any other allergens in their group. Oranges tended to produce a weaker reaction than grapefruit but still were very important and often required complete elimination from the infant and young child's diet. Grape and raisin frequently gave large cutaneous reactions in spite of the fact the weaker reacting pineapple of the same group was of greater value for the elimination diet.

Inhalants caused less trouble, although reactions to goat, wool, flax, and tobacco did not always indicate the true state of the sensitivities of the children. However, contrary to other writers, the studies revealed that positive tests from animal emanations, feathers (mixed) and cottonseed (linters felt) were of definite value regardless of the size of the reaction.

Occasionally an interesting phenomenon took place. One area of the child's back would flare up and develop the majority of the positive reactions while the remaining regions showed only a few scattered positive tests. No explanation could be given for this except that a neurological examination of the skin in this area revealed an increased sensitivity to touch. Some of these cases gave a positive history of urticaria. Dermographia was considered but was not always present.

When grouping of the positive reactions did occur, the tests were repeated using the reverse order to make sure of the area of hypersensitivity, after which this region was avoided. The accompanying figure reveals the pattern of positive reactions in a localized area. Although the upper portion of the back is shown as the sensitive region, any area could reveal this phenomenon of localized irritation.

No attempt has been made to point out all the precautions associated with the cutaneous testing of the allergic child. Only practical points in addition to those of a previous communication are briefly discussed in hopes that this diagnostic procedure can remain a valuable part of the allergic work-up until future investigations produce a satisfactory substitute.

SUMMARY

1. Children with allergic diseases were tested with a complete set of well prepared allergens consisting of in-gestants, inhalants and pollens arranged in proper order. The back of the patient was found to be the best location for this procedure.

2. The puncture technic was observed to give most satisfactory results.

3. Multiple reactions occurred among the various foods, inhalants and pollens. In such cases the positive food reactions were of greatest value in the infant, the inhalants later in the preschool period and the pollens up to and through puberty.

4. Food allergens presented at least two problems. Some were found to be more important in one allergic disease than in the others. Within a given group of related foods, the strong reactors were often observed to be less important than the weak ones in preparing an elimination diet for the child.

5. Inhalant reactions were more likely to indicate the true state of sensitivity of the allergic children.

6. Any localized area of hypersensitivity or hyperirritability of the skin disturbed the true pattern of cutaneous reactions to the allergenic extracts. This phenomenon occurred often enough to make it worth while to report.

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Growth and Development of Premature Quadruplets

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THE care of premature quadruplets is indeed an experience, an experience that rarely falls to the lot of a physician during a lifetime of practice. Although quadruplets occur about once in every 650,000 births, parturition usually happens so early in the period of gestation that the infants have little or no chance of survival.

At the present time there are seven living sets of quadruplets in the United States, and it is the purpose of this paper to report on the growth and development of one of these sets. In this particular case it is of interest to point out that the existence of a quadruplet pregnancy was diagnosed prior to delivery. Hence, may I preface my remarks on the Brown Quadruplets with the reminder that the successful termination of this delivery was largely due to the early diagnosis and prenatal prophylaxis instituted by their obstetrician, J. F. Hanna.

PREGNATAL CARE AND DELIVERY

Mrs. Nick Brown, age 37, of Leonard, North Dakota, presented herself for examination at about the sixth month of her gestation period, according to her menstrual calendar. Her measurements being somewhat excessive for that period, a radiograph was taken which clearly revealed four heads, as can be seen in Figs. 1. Inasmuch as the excessive size of the uterus, together with the increased weight of its contents, must play some part in precipitating an early labor, measures were taken to avoid such an occurrence by keeping the mother off her feet. She was hospitalized at six months of pregnancy, and immediate attention was paid to her diet in



Fig. 1.

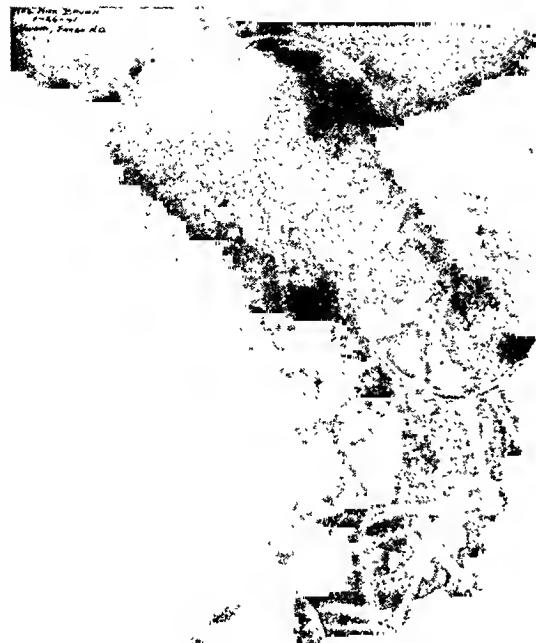


Fig. 1b.

regard to vitamin, mineral and protein intake. Prior to delivery the mother received vitamin K. The labor itself was spontaneous and the delivery quick and uneventful, the mother receiving a minimum of analgesia. The girl arrived first at 1:10 P. M., February 6, 1941, in an amniotic sac separate from the three boys—the latter, therefore, being considered identical triplets. Chances of accident or asphyxia were obviated by inversion—the total time of delivery of the four babies requiring less than five minutes.

POSTNATAL CARE

Respiration and Temperature Stabilization. The babies all breathed spontaneously at birth and no resuscitation measures were necessary. The color in each instance was very good. As soon as the cord was cared for, each infant was placed in a pre-heated incubator, and the incubator wheeled into a room over which the "No Admittance" order was rigidly enforced. No one gained admittance to this room except those upon whose shoulders the care of the children rested, and even these individuals were checked for respiratory and other infections.

The incubators used were those developed at the University of Minnesota and the Minneapolis General Hospital, in which the temperature and humidity are automatically controlled.¹

Once in the incubators the babies were handled as little as possible. Their temperatures were taken regularly, inasmuch as the premature's temperature-stabilizing mechanism is notably poor. Baths and even oil rubs were sus-

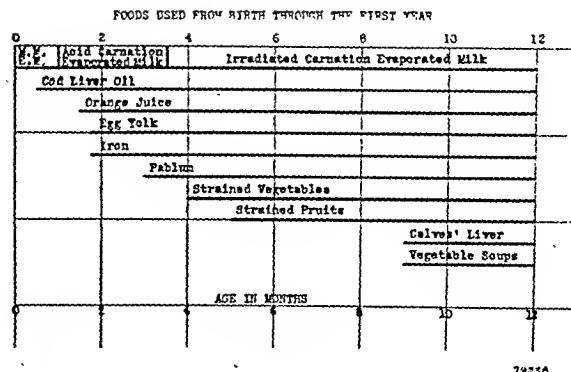


Fig. 2.

pended for five to seven days. Excreta pads were used, since they lessened the manipulation of the child. Cyanotic spells, which are so common in the premature during the early days, gave us little trouble. A tank containing carbon dioxide and oxygen was kept constantly at hand for such an emergency. The babies were kept in the incubators for one month.

Feeding Regime. The babies were fed according to the Stoesser regime,² and for the first few days this was accomplished without removing them from their incubators. They were fortunately able to take fluid by the nipple, and at no time was gavage necessary. Lactate Ringer's solution was used by hypodermoclysis at irregular periods whenever the total fluid intake was deficient or whenever it was felt that more food would be taken if water were not given by mouth. Every effort was made to obtain sufficient mother's milk. By the end of the first week, however, small amounts of complement had to be introduced, and irradiated Carnation evaporated milk, acidified with lactic acid, was used. By the end of the first month the breast milk had been completely supplanted by the evaporated milk.

Feeding at no time presented any unusual difficulties. Most concern was naturally felt for Clayton, the smallest of the group. He was fed with a dropper at first, but quickly manifested his ability to use a nipple, and by the end of the first week his twenty-four-hour fluid intake amounted to around 500 cc. The quadruplets have always had excellent appetites and have taken ample amounts of whatever was offered. No attention was paid to their caloric intake, and I heartily agree with Stoesser's statement: "The idea that so many calories per pound or per kilogram should be given has been over-emphasized. A good plan is to feed the premature baby an amount sufficient for adequate and consistent gain in weight."²

By the time they weighed around 8 pounds they were on a four-hour schedule, being fed at 6:00, 10:00, 2:00 and 6:00. At these hours they were awakened if necessary. They were then fed once between 6:00 P. M. and 6:00 A. M., at whatever hour they awakened. This had the tendency to encourage the babies to sleep through the night feeding entirely, and before they were three months of age all of them were getting four feedings per 24 hours with no feeding during the twelve hours from 6:00 P. M. to 6:00 A. M. Babies encouraged to adopt



Fig. 3.

such a regime have much better appetites and develop a greater capacity for food at the individual feeding hour. By the third month Clayton, the smallest of the group, was averaging between 800 and 900 cc. of evaporated milk formula per twenty-four hours.

Gastric upsets have been conspicuous by their absence. A food table is supplied (Fig. 2), indicating the time at which various articles of diet were added.

WEIGHT AND LINEAR DEVELOPMENT

For the first two weeks the babies were removed for weighing every third day and for the succeeding four weeks every second day, following which time daily weights were taken. They presented a combined weight of 17 lbs. 9 oz. at birth. Their weight progress can be illustrated in tabular form.

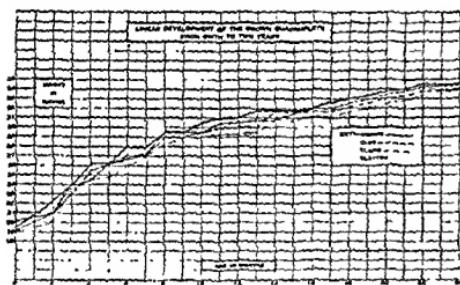


Fig. 4.

These weights illustrate the usual fact that the premature's initial loss is less than that of the infant of average weight. The quadruplets regained their birth weight within an average period and made a comparatively more rapid gain in the early months, placing them on a par with babies of normal weight at the end of the first twelve months. Both weights and heights over the two-year period are illustrated graphically in Figures 3 and 4. The development of these quadruplets for the period reported is equivalent to that of normal-term male infants fed on irradiated evaporated milk.³

MEASUREMENTS OF ADEQUACY OF NUTRITION

The growth and height of the Brown Quadruplets is in the high normal range, according to the Kotnfeld standards.

Bony Development. Daily ultraviolet-ray exposures were started at two months of age, using a General Electric large portable unit. As a result of these treatments, plus the vitamin D from the irradiated evaporated milk and codliver oil, none of the infants has shown the faintest sign of rickets, clinically or radiologically (Fig. 5).

X-ray studies of the chest and body, including the hips, were made at four months. Some widening of the upper mediastinal shadows was noted in Connie, Cleo and Clayton. In the first two it was felt to be due to vascular shadows. In Clayton, however, it was felt sufficiently indicative of thymic enlargement that x-ray treatments were administered in his case. Later radiographs showed disappearance of the shadow. The lung shadows in all were normal. Connie presented the most advanced bony development. In addition to a well-developed epiphyseal center for the medial aspect of the head of each humerus, she also showed the epiphyseal nucleus for the coracoid process of each scapula, which was not visualized in the remaining quadruplets. Clayton, the smallest of the group, manifested the least advancement in bony development. Congenital hips were ruled out.

Freedom from Infections. Infections were uppermost in our minds during the early days. Pressure was indeed great from news and movie photographers, as well as the curious public. Strict enforcement of isolation rules and technic by the hospital authorities and the complete cooperation of all reduced the problem of outside contacts to a minimum. At about 2½ months of age all developed a stomatitis, manifested by redness of the tongue and the appearance of little white blisters thereon. This was accompanied by a leucocytosis and lasted over a period of about two weeks. At this time lactic acid was removed from the diet and 50 mgs. of ascorbic acid were given daily. This represents the only infection of any kind manifested during their first two-year period.

Blood Cytology was started at about six weeks, at which time the usual physiological anemia was already apparent. Iron was immediately added to the diet. Blood counts which have been taken at approximately monthly intervals are tabulated for the first year (Table, Fig. 6).

Dentition. The outstanding feature of their teeth is the similarity as to form, shape of arch, and occlusion, which are almost identical. This is shown in the four pictures reproduced in Fig. 7. There is a slight difference in the eruption period of Clayton, as his lower second deciduous molars are just erupting, while the others are fully erupted.

The teeth show very good structure, with hard, flint-like enamel, fissures and pits well closed, and no tendency to caries or any indication of chalky structure in the enamel. There are no stains or deposits. The gums and surrounding tissues are pink and firm, giving a clean, healthy mouth appearance. The occlusion is good, with a slight tendency toward protrusion and heavier development of the alveolus on the upper anteriors. This is probably congenital, as the father's arch is similar. The teeth, including the posterior, are spaced, as shown in the pictures, indicating good development and expansion of the arches. The spacing may develop in the permanent set to some extent, as the father's teeth are apart, with a rather wide arch. The structure and health of the



Fig. 7.



Fig. 7.

	Birth Weight	Initial Loss	Regained Birth Weight	6 Months	12 Months	24 Months
Connie	4 lbs. 10 oz.	90 gm.	10th day	15 lbs. 2 oz.	20 lbs. 12 oz.	31 lbs. 3 oz.
Cleo	4 lbs. 10 oz.	140 gm.	15th day	15 lbs. 11 oz.	22 lbs. 7 oz.	30 lbs. 14 oz.
Claire	4 lbs. 9 oz.	60 gm.	9th day	15 lbs. 13 oz.	22 lbs.	31 lbs. 5 oz.
Clayton	3 lbs. 12 oz.	40 gm.	9th day	14 lbs. 9 oz.	21 lbs. 3½ oz.	30 lbs. 11 oz.

TABLE, Fig. 6

Date	CONNIE			CLEO			CLAIR			CLAYTON		
	Hb (Gms.)	RBC	WBC									
3-31-41	9.0	3.01		10.5	3.62		10.0	3.31		10.0	3.46	
4-25-41	9.5	3.01	7,500	10.5	3.38	11,700	11.0	3.20	11,550	10.5	3.46	10,900
6-2-41	11.8	3.67	9,350	12.0	4.22	9,700	12.3	3.70	8,950	10.0	3.19	8,600
7-16-41	9.5	3.96		11.0	4.08		11.0	3.64		11.0	3.60	
8-12-41	12.5	4.52	10,450	13.5	4.52	9,600	13.0	4.00	12,250	13.8	4.45	12,350
9-3-41	12.9	4.15	13,100	13.0	4.04	11,700	12.5	4.01	11,800	13.0	4.27	10,100
10-3-41	12.5	4.06	10,300	12.7	4.06	10,700	12.3	3.97	11,200	12.7	4.09	10,000
11-13-41	12.2	3.98	11,100	12.7	4.17	9,000	12.7	3.98	10,600	12.5	3.97	11,800
11-22-41	13.3	4.02	9,800	12.7	4.06	9,600	12.4	3.99	10,400	13.0	4.21	9,800
12-13-41	13.0	4.30	12,600	12.5	4.01	10,400	12.0	4.07	9,500	12.2	4.02	9,000
1-9-42	12.7	4.08	9,800	12.5	3.92	10,700	12.2	3.99	15,000	12.3	4.08	12,300
2-19-42	12.0	4.15	11,200	12.0	4.03	17,400	12.5		18,500	12.5		22,000
2-23-42	12.2		15,800	11.5		11,600	11.8		12,400	11.0		10,400

mouth tissues are exceptionally good in all four of the children.

GENETICS

Connie is readily separated from her three brothers in her general facial appearance. She has a longer, narrower face. The three boys are so alike in their facial characteristics that even the mother becomes confused in

differentiating one from the other. The children, however, have not the least difficulty, and to the question—"Where is Clayton?"—the other three immediately and in unison point him out.

Hair and Skin. Connie has absolutely straight hair and a more deeply pigmented skin than the boys. Her hair is likewise darker. All the boys have slightly curly hair of the same light shade and texture.



Fig. 7.



Fig. 7.



CLEO (Fig. 5)



CONNIE (Fig. 5)



CLAYTON (Fig. 5)



CLAIR (Fig. 5)

Blood Grouping shows an interesting although usual phenomenon, Connie being in Group B and the three boys all in Group O. The mother is in Group O, the father in Group B.

IMMUNIZATION

At seven months they were vaccinated for smallpox and inoculated for diphtheria. Following this, pertussis vaccine was administered. In March, 1942, Schick tests and intracutaneous Mantoux tests were negative in all. All other members of the family, together with the mother and the father, were included in this program. All not vaccinated within a period of five years were vaccinated or revaccinated, and diphtheria toxoid was used on all who manifested a positive Schick test. Those not having had whooping cough received the vaccine.

RECAPITULATION

The growth and development of the Brown premature quadruplets during their first two years of life is described. This quadruple pregnancy was diagnosed prior

to birth and proper measures to assure adequacy of the mother's diet and continuation of pregnancy were instituted. Brief reference is made to the delivery, immediate postnatal care, and feeding. Charts of the babies' weight and linear development, nutrition, and blood cytology are presented, together with pictures of their over-all development and dentition.

CONCLUSION

The general health and development of the Brown Quadruplets appear to be normal, and there is no evidence of any physical or mental abnormality resulting from their prematurity.

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Duodenal Obstruction in the Newborn*

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ALTHOUGH duodenal obstruction is a rare congenital anomaly, occurring only about once in 20,000 infants, the surgical alleviation of this condition has made such progress in the past fifteen years that I feel the abnormality should be reviewed and again called to our attention. My most valid reason for this presentation is the fact that recently I had the privilege of observing, operating, and curing three infants who presented this anomaly.

Duodenal obstruction presents an emergency in the first few days of life which always requires surgical intervention. Bland-Sutton in 1889 stated that these anomalies occur at the site of complex embryological events. Ernst in 1916 performed the first successful operation for duodenal obstruction in the newborn.

The obstruction may be intrinsic or extrinsic in nature. If the condition is intrinsic it may be either an atresia or a stenosis. Any portion of the duodenum may be affected, but the first and third portions are most frequently involved. According to Ladd, stenosis is more frequent in the duodenum than atresia.

The extrinsic type of obstruction may be caused by congenital peritoneal bands, blood vessels crossing the third portion of the duodenum, malrotation of the large gut, or abnormal fixation of the cecum. These etiological factors may also occur in combination.

The intrinsic obstruction presents an interruption in the continuity of the bowel which may be a gap, a cord-like structure, or a septum.

Tandler, an anatomist, advanced the most reasonable theory regarding the etiology of intrinsic obstructions.

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He examined eleven fetuses aged 20 to 60 days and found that on the 30th day an epithelial proliferation begins in the duodenum and results in a more or less complete obstruction of the lumen. The obstruction is greatest on about the 45th day, and seems to have ceased about the 60th day. Tandler's theory is that congenital atresia of the small intestine is due to persistent physiological epithelial obstruction.

This work was confirmed by Kreuter and Forssner. Forssner maintains that a narrow epithelial stenosis may become a complete atresia later on in fetal life, and in this way he explains the presence of meconium below the atresia.

Thus it is clear that if recanalization fails at any stage short of completion, an intrinsic obstruction results. If the obstruction is complete, it is an atresia, if incomplete, a stenosis.

Fortunately, this obstruction is usually single, only multiple in about 15 per cent of the cases.

The outstanding symptom in infants afflicted with this condition is vomiting. The onset of vomiting occurs with the first feedings and is continuous. If the obstruction is located above the ampulla of Vater, the vomitus does not contain bile, if below it always does. If an atresia is present, they vomit the entire feeding, if a stenosis, some small portion of the feeding may pass the stenotic area. The infant rapidly becomes dehydrated, loses weight sharply, and may or may not pass meconium. Anuria is present, the fontanel becomes depressed, the tissues present poor turgor, and the baby is usually running a dehydration temperature. If the obstruction is complete, normal colored stool is never passed and cornified epithelial

cells are not found in the meconium. If incomplete, very small but colored stools appear and cornified epithelium is present.

Distention usually appears in the upper abdomen because of the dilated stomach and duodenum, while the lower abdomen remains flat.

Gastric peristalsis, in most instances, is visible, and occasionally peristaltic waves can be seen transversing the duodenum.

When these symptoms are present in a newborn, a flat plate must be taken of the abdomen at once. If no gas is visualized in the small bowel, you are dealing with an atresia. On the other hand, if small amounts of gas are scattered throughout the small and large bowel, the infant has a partial obstruction which may be either intrinsic or extrinsic. The stomach will present moderate to marked dilatation, you are usually able to visualize the distended, gas filled, duodenum. The duodenum in our four-day-old infant was about 3 cm. in diameter, and was at first thought to be the pyloric end of the stomach.

Frequently, the exact location of the obstruction can be determined from the flat plate alone. However, if there is any doubt, and the obstruction is incomplete, a very thin barium mixture may be given by a stomach tube under fluoroscopic control, and flat plates will then reveal the exact location of the obstruction. Occasionally, a plate taken with the baby in the up-side-down position will be helpful.

Differential diagnosis in this condition is not particularly difficult. However, the following conditions must be kept in mind:

In an esophageal stricture, the vomiting occurs immediately after feeding is given.

When a tracheo-esophageal fistula is present, cyanosis and cough are produced while giving fluids.

Pylorospasm presents no bile in the vomitus, stomach is not distended, gas is present in small bowel, and the condition responds to medication.

Pyloric stenosis has projectile vomiting about the second or third week of life, bile is absent from vomitus, gas is present in small bowel, and in most instances a pyloric tumor is palpable.

Routine digital examination will rule out an imperforate anus.

When a partial duodenal obstruction is the preoperative diagnosis, it is impossible to tell whether it is intrinsic or extrinsic in nature. Only an exploration will determine the true pathology.

Occasionally, a peritoneal band will cross the third portion of the duodenum and a malrotation of the large bowel will accompany it. This condition may lead to severe intermittent vomiting attacks which are produced by a volvulus. One of our cases is in this category.

If the cecum is anchored in the upper right quadrant, as the results of malrotation, it will produce an extrinsic type of duodenal obstruction. This is the anomaly so admirably described by Ladd, and the operation rightfully bears his name.

The diagnosis having been established, you must at once proceed with surgical interference. If the condition is one of atresia, you are aware before starting that some short-circuiting type of operation will be necessary. If

stenosis is present, you cannot foresee what your exact operative procedure will be.

The pediatrician, who must be your right-hand-man in this type of work, will help guide the preoperative preparation. These infants need repeated hypocalysis, and usually a transfusion before operation. Before proceeding, wash the stomach until the return is clear, wrap the extremities in flannel or cotton-battening, and place the baby on a heated platform on the operating table. Remember that these babies do not tolerate heat loss. The anesthetic of choice should be ether by the open-mask drop method, and given only by one skilled in infant anesthesia.

A right para-median incision extending from the costal margin to below the umbilicus will provide excellent exposure. Be very careful about bleeding points, infants do not tolerate blood loss. Upon opening the peritoneal cavity, determine at once the presence or absence of malrotation. Lift the entire small bowel from the peritoneal cavity so that time will not be wasted trying to orient yourself. Speed is essential when operating upon infants. Keep small bowel well protected in warm saline packs. Examine the pylorus and the first portion of the duodenum at once. Follow the dilated duodenum through its course and determine the exact location of the obstruction.

If the obstruction is extrinsic in type, and due to a misplaced cecum, mobilization of the cecum and placing it to the left of the mid-line will correct the condition. This is known as Ladd's operation, and has been well described by him. If congenital peritoneal bands are present, either in the first or third portion of the duodenum, cutting them will produce a cure.

Intrinsic obstructions result in a marked distention of the duodenum above the pathologic process.

This condition requires a short-circuiting operation around the point of obstruction. If the obstruction lies above the ampulla of Vater, a gastrojejunostomy must be done. The anterior method is preferable because considerable time can be saved. If the obstruction is below the ampulla, a duodenoejejunostomy must be performed. A retrocolic duodenoejejunostomy proved successful in the two intrinsic obstructions I have to report. The collapsed jejunum is about the calibre of a lead pencil, and Webb and Wangenstein in 1931 devised a technic of injecting fluid or air into the collapsed bowel resulting in its dilatation and making anastomosis easier. When performing the lateral anastomosis, two rows of fine silk suture will suffice.

Quickly, return the small bowel to the peritoneal cavity and close the abdominal wall in layers, using catgut or silk, whichever is preferable. After this procedure, the infant is in deep shock, and I believe a transfusion should be given before leaving the operating table. Return the baby to an incubator and continue shock treatment. We have found oxygen helpful for the first few postoperative days.

The postoperative care of most of these babies is long, tedious, and difficult. The feeding problem is a real chore and the pediatrician must be present at all times to guide the situation.



Baby Girl George
Age — 8 days

S.—Stomach. P.C.—Contracted pyloric canal. D.—Dilated descending duodenum. O.—Obstruction of descending portion of duodenum.

Baby George, our first infant in this series, who was referred by Dr. Robert L. Wilder, was submitted to the following feeding regime at his request. He outlined the indications for early postoperative feeding as follows:

1. A starving baby needs food to maintain positive nitrogen balance and prevent break-down of body protein.
2. A "fed" baby should have less gastrointestinal motility than a "hungry" baby.
3. Passage of food through the duodenojejunostomy should favor mechanical function of the opening.
4. Presence of food to take up the digestive secretions in the stomach and duodenum should favor healing and lessen the possible deleterious effects of such secretions on the operative wound in the intestine. (The principle of the Sippy treatment of ulcer.)
5. Resumption of fluid intake through natural channels to establish normal hydrations and electrolyte balance.

I must confess that I started this feeding regime with some hesitation, but everything went along so nicely that it was instituted on the other babies with splendid results.

We started feeding these babies by tube within four hours after they left the operating table, and carried on a schedule similar to a postoperative pyloric stenosis. There was some "spitting-up" for the first few days, but after that they retained their feeding very well. After the first week, the babies were strong enough to take the bottle and carried on in this manner. The aid of the pediatrician through this session is invaluable, and I am sure that many of these babies would be lost without his support.

Ascorbic acid should be started at once to insure the best possible wound healing. In my experience, the wounds healed poorly and slowly, however, I was fortunate enough not to have an evisceration in any of the cases.

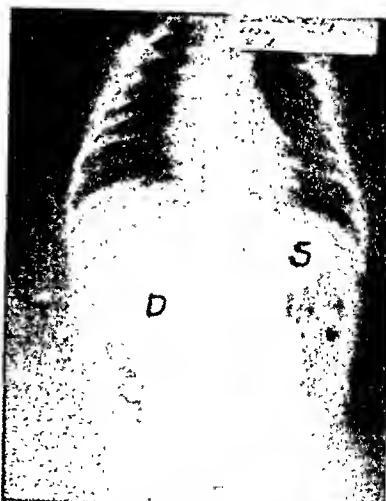
These babies will need at least one or two hypodermes every twenty-four hours for the first week or ten days in order to maintain proper hydration and electrolyte bal-



Baby Girl Pearson
Age — 4 days



Baby Girl Pearson



Baby Boy Swenson
Age — 3 months

ance. We have likewise given three or four transfusions during their postoperative stay, feeling that it gives them additional support which they badly need.

The nursing care is of utmost importance for a successful outcome in these cases, and you must have nurses who are skilled in the care of infants. After the surgery has been completed, I firmly believe that the final result lies as much in the hands of the pediatrician and nurses as the surgeon.

RESUME OF THREE CASES OF DUODENAL OBSTRUCTION IN THE NEWBORN RECENTLY OBSERVED, OPERATED AND CURED

1. Baby Girl George was seen in consultation with Dr. Robert L. Wilder, on the eighth day of life.

History—Full term normal delivery. Birth weight, 6 lbs 8 oz. Put to breast and given water on first postnatal day. Vomiting noted within first thirty-six hours, characterized by yellow color, but no cough or cyanosis. Feedings by tube, vomiting continued. On fourth day of life, small amount of digested milk noted in stools. Sharp weight loss, and bile colored emeses continued. Bile pigments present in stool.

Diagnosis—Partial obstruction below ampulla of Vater.

X-ray barium meal—Dilatation of duodenum, marked stenosis at duodenjejunal juncture. Dr. R. W. Morse

Comment—Clinically, symptoms of vomiting and loss of weight, in the absence of fever, suggested obstruction. Bile in the vomitus placed the obstruction below the ampulla of Vater. The presence of digested milk stool, containing bile pigments, showed obstruction was not complete. Surgery indicated.

Operation—Retrocolic duodenjejunostomy.

Result—Baby now 15 months old, development and growth normal.

2. Baby Girl Pearson, seen in consultation with Dr. Arthur Karlstrom on the fourth day of life.

History—Full term normal delivery. Birth weight 7 lbs. Vomiting noted second day of life. Vomitus bile stained. Small amount of meconium passed. Sharp weight loss.

Diagnosis—Duodenal obstruction below the ampulla of Vater

X-ray—There is evidence of obstruction in the third portion of the duodenum with a marked dilatation of the proximal duodenum. Dr. M. Hanson

Comment—Symptoms of vomiting and weight loss in the absence of fever suggested obstruction. Bile stained vomitus placed the obstruction below the ampulla of Vater.

Operation—Duodenjejunostomy.

Result—Baby now 15 months old, growth and development normal.

3. Baby Boy Swenson, seen in consultation with Dr. Willis Thompson.

History—Full term, birth weight 7 lbs, 12 oz. While in nursery, vomiting at frequent intervals, copious and bile stained. Discharge weight 7 lbs. 5 oz., gained 1/2 lb. per week for next six weeks. At six weeks of age, another severe vomiting spell, copious and bile stained. At three months of age, most severe vomiting spell, copious and large amounts of bile. Sharp weight loss. Peristaltic waves left to right.

Diagnosis—Partial obstruction below ampulla of Vater.

X-ray—Dilatation of duodenum. Obstruction at or just beyond duodenjejunal angle. Dr. W. Ude.

Comment—Intermittent attacks of vomiting, with sharp weight loss and absence of fever suggested partial intestinal obstruction. Bile in vomitus placed obstruction below ampulla of Vater. X-ray showed obstruction was incomplete. Surgery indicated.

Operation—Upon opening the peritoneal cavity, the small bowel was cyanotic, showing that a partial volvulus was present. The cecum and appendix were in tight upper quadrant. The

cecum and ascending colon retained their embryonic mesentery. Exploration of the duodenum revealed the obstruction in the third portion. The duodenum was cleared and then it was apparent that a large congenital peritoneal band extended from the ascending colon, across the duodenum, and was attached at the root of the mesentery. Root of mesentery narrow. Congenital band cut between ligatures. The duodenal obstruction was released at once and gas passed freely beyond and distended the collapsed jejunum. The midgut had rotated around this congenital band, as an axis, and produced an intermittent volvulus.

Postoperative Diagnosis—Malrotation of bowel, peritoneal band producing obstruction in third portion of duodenum. Recurrent volvulus.

Result—Baby well, 16 months after surgical interference, with no recurrence of previous trouble.

CONCLUSIONS

1. Duodenal obstruction in the newborn presents a surgical problem, usually an emergency in character.

2. Progress and success in this field of pediatric surgery depends upon early diagnosis, proper preoperative, and diligent, painstaking postoperative care.

3. Co-operation between the pediatrician, roentgenologist, nursing staff, and surgeon, tends toward successful outcome for these infants.

4. Three additional cases of congenital duodenal obstruction, with successful surgical intervention, may be added to the literature.

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Involvement of the Colon in the Newborn Infant

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INVOLVEMENT of the colon by congenital strictures and obstructions in the newborn infant presents problems of the greatest difficulty both for the pediatrician and for the surgeon. The morbidity and mortality in these conditions is discouragingly high, due primarily to the fact that these young babies do not tolerate well the surgery necessary in all but the most uncomplicated cases. The following brief paper, consisting largely of notes from the histories of five such patients, may serve to illustrate the difficulties and dangers omnipresent under even the most favorable conditions.

Our first instance, Baby Boy B., is given in some detail, as it presents for the most part a classic picture of congenital obstruction involving different parts of the colon.

This child was born April 9, 1943, with a birth weight of 7 lbs. 1 oz., and began regurgitating after the first forty-eight hours. The next four days the baby gained from its birth weight to 7 lbs. 4 oz. Meconium stools were reported on the third, fourth, and sixth days, and one small brown stool from then on. The child lost weight from the sixth day, and vomited more and more. The abdomen became increasingly more distended. Laboratory findings were as follows:

April 15, 1943: Hemoglobin, 124 per cent; RBC, 6,030,000; WBC, 9,150; neutrophiles, 54 per cent; lymphocytes, 46 per cent; 1 nucleated red cell seen. April 18, 1943: Hemoglobin, 128 per cent; RBC, 5,200,000; WBC, 12,700; neutrophiles, 43 per cent; lymphocytes, 49 per cent; 7 monocytes, 1 eosinophile.

On April 14, the child's condition seemed serious enough for him to be seen in consultation. Involvement of the colon was suspected, and rectal examination (small finger) and also introduction of catheter were recommended. About 1½ inches inside rectum from anal opening, a stricture was found which felt tight as a purse-string suture about the finger. This was dilated, a catheter passed, and 10 cc. of mineral oil injected. A very small amount of food stool was obtained. Larger catheters were then passed, and a greenish, foul stool with gas obtained, with a definite decrease in abdominal distension. In spite of this apparent improvement, a cord-like mass, gas-containing, continued to be palpated in the right lower quadrant, along the inguinal ligament. The child improved, however, and began to nurse instead of being fed breast milk by gavage. X-ray on April 15, after a low barium enema, showed a moderate accumulation of fecal material and gas in the colon, with the small bowel definitely distended beyond normal. Partial obstruction was diagnosed; injected air showed considerable air had entered the proximal portion of colon.

In addition to the procedures mentioned, the child had been given atropine, 2 drops of 1:2,000 before feeding and ½ teaspoonful pancreatin T.J.D.

The baby was discharged without further study because it took 3½ to 4 oz. per feeding at the breast, and

was having two soft, normal (though small) stools a day. The diagnosis was *stricture of bowel*, 1 to 2 inches inside anal opening and probably 2 inches farther in. The cord-like, gas-containing mass was disregarded, though not without some argument.

On September 11, 1943, this child was admitted to St. Mary's Hospital, and a history was taken at that time of what had occurred between the age of sixteen days and of five months. The mother reported that the child nursed poorly on the breast, but that on pancreatin and breast milk, stools continued to be loose and frequent. Because of the mother's doing heavy manual labor, she was unable to continue nursing the baby, and he was put on cow's milk, and finally on evaporated milk. Immediately upon the change to cow's milk, difficulty in evacuation resulted, and hard stools were obtained. For a period of some weeks, mineral oil was given, and the child did well, having one or two stools a day. Because someone suggested to the family that mineral oil was injurious, it was discontinued. From then on for the next two months severe constipation existed, and for the last six weeks prior to admission daily enemas were given.

The present illness dated back one week, and was marked by increasing distension and difficulty of evacuation, even when enemas were given. Two days before admission, the baby refused food, and the most taken in a feeding was 2 oz. On September 11, the day of admission, the child had taken 4 oz. at the two morning feedings. He vomited after all afternoon feedings, probably emptying more than was given by mouth.

In spite of the long history, the child's condition on admission was fairly good. His weight was 12 lbs. 12 oz., temperature 98.6, pulse 110 to 120; there was a good radial pulse, the tongue was moist, turgor good. Upon general examination, the findings of eyes, ears, nose, throat and chest were all entirely negative. The abdomen was distended; on auscultation, tinkles were heard, then loud explosive gurgles. The distension was very marked. Palpation caused crying, and a mass containing gas was felt in the right lower quadrant. This seemed to "rise up" from time to time, and easily audible gurgles were noted at these times, with signs of distress to the baby.

Catheters and enemas did not aid in the evacuation of gas through the rectum. Rectal examination revealed two hard fecal balls, one ½ inch and the other 1 inch in diameter. These were removed manually. There was no sign of blood. Water was taken reluctantly by the baby, and vomited in one-half hour. The child quieted down after small feedings were begun. Hypodermoclysis, sedation and hot packs to abdomen were instituted. For the next two days, the baby continued to be distended, and vomited occasionally. Daily transfusions were given, 2½ to 3 oz., and the baby's condition continued good. No stool was obtained, other than an occasional slight amount of colored material.

The decision to operate was based on the likelihood that the general condition of the infant was certain to decline; it seemed obvious that the obstruction was in the ileocecal region, as the barium was shown by x-ray to have proceeded to this point. From succeeding events, it appears that the possibility of other involvement of the colon might not have been considered seriously enough.

At operation, the small bowel was dilated enormously—about three times the size of the colon—and it was impossible to "milk" anything through the ileocecal valve in either direction. However, when a forcep was applied to the small bowel, and then pressure applied to a small segment a few inches from the ileocecal valve, some gas could be forced through the valve. On exploration it was found that round, hard masses were present throughout the colon, but more in the transverse colon and upper part of the descending colon. These masses were considered too hard to be disintegrated—"almost like large gallstones." Subsequent to operation, there was a stormy course, undoubtedly due to manipulation of the bowel in an attempt to crush these masses so they could be passed, as well as to the surgical procedure of dilating the colon by opening the small bowel near the ileocecal valve and the dilation of the valve itself. The result was some contamination, in all likelihood. Forty-eight hours after the operation the baby appeared to be much better, and the temperature, which had reached 106.4 on the second postoperative day, came down to almost normal. The distension continued to grow worse, although a little gas and a few lumps of fecal matter and barium and some colored particles were obtained in colonic irrigations.

On the seventh postoperative day, the condition of the baby suddenly became critical, and after some drainage from the wound, a spurt of stool indicated rupture of the bowel, followed by death.

The postmortem showed that the small bowel had burst through the incision used to insert the forceps to dilate the ileocecal valve.

The autopsy showed the ileocecal valve wide open, but the ascending colon filled with mush-like material. The transverse colon was filled with soft material and lumps, and the descending colon completely impacted with large, hard masses. This possibility had been considered as the likely result at operation, although general ileus and an ileocecal valve that had closed after dilation had been considered as causes of the obstruction with distension.

The second case was that of *Baby Boy K*, born May 4, 1943. Delivery was normal, and the baby's birth weight was 6 lbs. 9½ oz. Again symptoms developed as in Baby Boy B, slowly, and regurgitation was complete only on the fifth day. Slight jaundice and dehydration was noticed at the same time. By the seventh day, projectile vomiting and severe abdominal distension made treatment imperative. X-ray indicated obstruction at the ileocecal valve. At operation, because of complete ileocecal valve obstruction, ileocecostomy was performed. Postoperatively, the baby continued to give evidences of partial obstruction (though small stools and even looseness and frequency were present). These evidences were abdominal distension and much gas in the small bowel.

The child at times seemed to be doing well, and then would lose weight and strength. Gradual emaciation took place, the child dying on the fifty-seventh day.

The autopsy showed the abdomen to be the site of the difficulty. The small intestine was markedly dilated, and the point of obstruction at the time of the post-mortem examination was apparently at the place of operation. At this time, the lumen of the colon was small, and the distal colon almost entirely collapsed. Obviously the small lumen of the colon markedly affected absorption. The lumen did not change in diameter in spite of enemas and passage of food.

The third and fourth cases were alike. Obstructive signs, vomiting, distension, and evident distress were present as soon as appreciable amounts of food were taken, and it was doubtful if even meconium was observed. Obstruction was demonstrated about 1½ inches inside the anal canal, which formed a pouch ending in a cord-like structure of colon extending to the ileocecal valve. In one case, the colon had failed to rotate and the ileocecal valve and appendix were in the upper left abdomen. Both children died after laparotomy.

The fifth case was that of *Baby Boy M*, brought to the hospital with a diagnosis of intestinal obstruction. The history was of a three-day-old, full-term infant, in whom only two meconium stools had been observed. Vomiting occurred on the first day. Gavage was tried on the second and third day, but the vomiting continued, with increasing abdominal distension. No food stools had been noted. The facial expression was one of distress, with wrinkling of the forehead. The baby cried and whined a great deal. The blood picture was: Hgb. 118 per cent, RBC 5.5 million, WBC 19,300, PMNs 79 per cent, lymphocytes 17 per cent, and monocytes, 4 per cent. The abdomen was so tense that the skin was shiny. On palpation, a "resistance" was noted just to the right of the umbilicus, estimated to be 2 inches long and 1 inch in diameter. On rectal examination, a constriction was noted 1½ inches inside the anal opening. When a catheter was introduced higher than could be reached by the palpating finger, meconium gushed out around the tube in large quantities. The abdominal distension was immediately relieved and the baby within twenty-four hours was taking 2 oz. of breast milk from the bottle at a feeding. The baby was sent home, so it could nurse at the breast. (The mother had been delivered outside the city.)

SUMMARY

1. The colon may be completely obstructed—a cord-like structure—with or without rotation, throughout the bowel. The diagnosis is clinched by rectal and catheter examination—1 to 1½ inches inside of the rectum, complete obstruction is encountered. Barium injection will show a small rectal pouch.
2. Partial obstruction, due to stricture, may be encountered (a) 1 to 1½ inches inside of anal opening, where complete obstruction noted above ends. Dilatation of bowel with small finger relieves this situation, although it may be associated with a second obstruction, (b) possibly of the sigmoid flexure, which responds to introduction of a catheter, and (c) an abnormally functioning ileocecal valve, manifested at birth by the palpation of

an ill-defined mass in the ileocecal region, probably the distal end of the ileum. Barium given by bowel proceeds to the ileocecal valve, and a flat plate of the abdomen shows dilated coils of small bowel, with symptoms of abdominal distension and vomiting.

3. Partial obstruction throughout the large bowel may be due to a small though patent lumen associated with ileocecal obstruction.

4. The presence of meconium stools in these children is a very important consideration, although this does not insure patency throughout the bowel, nor does it rule out partial obstruction. Apparently meconium can reach the lower parts of the bowel during early intrauterine life, and later strictures occur, causing varying degrees of obstruction.

5. Partial obstruction results in slowly developing inanition.

6. The ileocecal valve may have a profound effect upon the development and function of the colon. The

presence of symptoms of obstruction in a newborn with a mass in the ileocecal region should suggest ileocecal obstruction. The slow passage of meconium before birth, and of food after birth, may be a factor in the formation of strictures of the colon in the first instance, and *fecoliths* in the second.

7. Further investigations should yield valuable information concerning lumen formation of the large bowel, the action of meconium, and the physiology of the ileocecal valve and the colon.

Surgery in these cases of serious obstruction, complete or partial, will depend on a new approach, in which the normal physiology can be restored.

(Grateful acknowledgment is made to Drs. Raymond M. Sullivan, Ferdinand A. Zinter, Stanley R. Maxine, and Richard E. Pogue, who made it possible for me to see the above cases, also, to Drs. Edw. A. Regnier and Oswald J. Wyatt, who attempted to remedy the above cases with surgery.)

The Appendix as a Pediatric Problem

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IT is the purpose of this paper to discuss acute appendicitis in children, not from the standpoint of its diagnosis, nor from the angle of its treatment, but from the point of view of its prevention. The conceptions presented are based upon the conviction that this disease usually, if not always, warns before it strikes. I shall concern myself here mainly with the warnings, since once they are recognized, the course of action indicated is obvious.

As my experience in dealing with appendicitis in children has been accumulating two conclusions have been forced in focus: first, that the vagaries of the background from which it makes its appearance are too commonly encountered to be disregarded; second, that they are too varied to fit any but a very broad conception of etiology. Prominent in the history have been such complaints as nausea and/or vomiting, occasional, habitual, or viciously periodic; constipation and diarrhea (or their alternation); a premature sense of fullness when eating; abdominal pains, in character most inconstant, not only in severity but also as to duration, location and the nature of the apparent inciting cause, etc. All of these complaints have been common in the past histories of cases finally coming to operation. That they have, with monotonous regularity, disappeared after appendectomy should disavow the possibility of accident to the logical mind.

While events and the ideas they imposed were arranging themselves in my mind in that order, Wangensteen and his collaborators¹ brought into sharpest focus the obstructive origin of appendicitis as opposed to a primarily infectious one. They declared for the former, and that the sequence of events was blockage of outflow from the lumen of the appendix toward that of the cecum, accumulation of retained contents and secretions, and internal pressure. Thence follow distension of the obstructed portion, infection, tissue destruction and vascular

thromboses in more or less simultaneous, and often explosive progression, with gangrene and perforation as the climax. Presumably the process might be interrupted at any time before irreparable damage had occurred in the involved portion of the appendix by the giving way of whatever might constitute the obstructive force.

The contentions of these men seemed to form the perfect answer to the questions of etiology my observations required. Once correlation had occurred the possibility of predicting appendiceal infection gradually began to assume shape and the idea of a "crippled" appendix,² meaning thereby one anatomically predisposed to the accumulation of luminal contents, arose. It became my custom to examine the case histories of patients with frank appendicitis from the standpoint of previous gastro-intestinal symptoms and, further, to think of patients with an excess of such ailments as potential cases of acute appendicitis. The results have been interesting and not without practical value. Following are some case reports.

Case 1. A girl twelve years of age had had persistent gastrointestinal disturbances for the past seven years. These had consisted of pains of indefinite, though often-times violent character and accompanied or not by nausea or vomiting or both. Usually they accompanied some other type of illness such as nasal sinusitis, tonsillitis, measles, scarlet fever, etc. In spite of my feeling that a "crippled" appendix was responsible I had never been able to demonstrate tenderness in the region of the appendix until 18 months before the final attack at which time the mother was carefully warned.

The final seizure began in the usual manner and it was 18 hours before the mother recognized a rising fever and appendiceal tenderness. By the time the appendix was removed, two hours later, the proximal portion was found to be dangerously distended, inflamed and covered with exudate. The base showed severe constriction, prob-

ably congenital, and within the lumen were fecaliths and purulent exudate.

Case 2. Girl seven years of age, since infancy had been subject to attacks of cyclic vomiting of a type to cause hospitalization, severe constipation and abdominal pains. Any or all of her symptoms were precipitated at times by infectious processes, especially nasal sinusitis, the acute infectious diseases, etc., but they also occurred with no apparent cause.

I had seen the patient time after time in attacks of varied nature and never had been able to demonstrate tenderness over the appendix until my last visit. This was at the end of an occasion in which vomiting and abdominal pains had been the primary complaints. For the first time the appendiceal tenderness was present. I explained to the parents the probable existence of a "crippled" appendix and advised its removal. This was done several months later, following another series of attacks. The surgeon found an uninflamed appendix, but one that was severely constricted at the base, an anomaly thought by him to be congenital in origin. All abdominal complaints ceased after the appendectomy.

Case 3. Boy ten years of age came to me four years before with a complicated history of respiratory infections, rheumatic fever and a primary tuberculosis. Almost immediately after I first saw him he began to complain of abdominal pains of varied character. All I could find was a spastic descending colon. The patient was of a highly nervous disposition, a tendency which was encouraged by environmental conditions. The abdominal discomfort which included nausea and vomiting, interwoven with disorders subsequent to a persistent nasal sinusitis formed an almost constant complaint pattern throughout the next four years. At this time minor nasal surgery was decided upon and he entered the hospital one evening. Shortly after his arrival he began to complain of his customary stomach ache, but received little attention until early in the morning, when fever and definite tenderness were noted by the intern. By this time advanced appendicitis was present. Rupture was imminent by the time the appendix could be removed. It was found to be sharply kinked in the middle with the distal portion gangrenous and filled with pus. All abdominal complaints have been absent during the year following the appendectomy.

Case 4. A boy six and a half years of age was suffering from a nasal sinusitis of mild degree. Shortly after I saw him for the first time he developed a diarrhea which was diagnosed "stomach flu" by the mother. She seemed familiar with that complaint. There was no tenderness over the appendix when I saw him just after recovery. Three or four months later diarrhea and vomiting of rather persistent nature developed again in accompaniment of sinus flare-up. This time I could demonstrate tenderness which was very slight over the appendix. In the hospital his vomiting and diarrhea rapidly improved, but the slight appendiceal tenderness continued. X-ray studies showed this tenderness to be sharply confined to the area in which the appendix could be visualized. Immediate appendectomy was advised but refused.

Three months later, during which period the patient

had not been acutely ill at any time but had not felt entirely well either, the parents consented to operation. At this time slight tenderness could still be elicited on deep pressure over the appendix. At operation an extremely long and twisted appendix was removed. It was not inflamed. The patient has been free of his abdominal discomforts during the nine months since the appendectomy, though he has had trouble with his nasal sinuses.

Case 5. A girl ten years of age was referred to me because of a very complicated series of complaints supposedly due to rheumatic fever. She had attacks in which she would complain so bitterly of fleeting pains in her arms or leg joints and in various parts of the abdomen that her parents became hysterical. Such tests as sedimentation rate and Mantoux were normal and I could find nothing except a spastic bowel and infected tonsils and adenoids with nasal sinusitis.

The "attacks" continued to appear at intervals for the next two months by which time I decided that the primary trouble seemed to be a recurring sinusitis with secondary abdominal symptoms resulting from spasm. Tenderness over the appendix was not demonstrated, though she was often tender elsewhere, usually over a palpably spastic bowel. Having become conscious of the relationship that often occurs between a "crippled" appendix and spastic bowel I determined to send her to the hospital for observation and gastrointestinal studies. These showed as their essential findings, a visible appendix which could be definitely determined as a spot of tenderness. (Never before had tenderness been demonstrated in the right lower quadrant.) The appendix was removed and at operation was found not to be inflamed but to be long, tortuous and sharply kinked in the middle. Both the parents and family physician say that the child has been perfectly well.

Case 6. A boy six years of age had been in bed most of the preceding winter supposedly because of rheumatic fever. During the intervening summer his tonsils and adenoids had been removed, but this fall he had taken suddenly ill with what was again diagnosed as rheumatic fever. This time it proved to be measles. However, following this illness, nasal sinusitis persisted and abdominal pains, of which the patient had complained rather persistently throughout the illness of the preceding year and for a year or more before, again appeared. A spastic bowel could be felt and in addition, slight tenderness over the appendix.

Appendectomy was decided upon but was interfered with by an acute flare-up of the nasal sinusitis. Abdominal pains continued all of the time and tenderness was always demonstrable, though slight in degree.

A month later, the patient's condition permitting, the appendix was removed. It was long, mildly injected and tightly constricted at its base. Though nasal sinusitis is still active, all abdominal complaints have been absent since the operation, and the patient's condition is improving rapidly.

Case 7. This patient was seen immediately after birth. Gastrointestinal symptoms began at the age of ten months. First there occurred vomiting associated with an acute nasal sinusitis. This progressed into a bronchopneumonia and vomiting was persistent. Later diarrhea

and vomiting appeared, usually associated with the nasal sinusitis. On one occasion it was necessary to send him to the hospital for several days to control dehydration, etc., arising from these causes.

Finally, when he was almost three, after many telephone conversations with the mother concerning the care of the usual abdominal and respiratory complaints, I felt it necessary to see the patient at midnight. He had just enough temperature to be temperature, but general abdominal tenderness was present. The next day he complained as before and continued to vomit. Now it did seem that he was a little more sensitive over the appendix than elsewhere but everything was very indefinite so I waited another day. As I came to his room he was walking sturdily to the bathroom and, though his temperature was 100 by rectum and there seemed to be some tenderness in the right lower quadrant I could not feel that infection of the appendix was present. However, I turned the case over to a surgeon who decided that it would be best to get rid of the appendix and set the time for the next afternoon.

By that time the temperature was 101°. An intensely inflamed and distended appendix was removed. It was found to lie far to the right of the usual location and to be bound down rigidly by a very short meso-appendix. It was ruptured during the process of removal but, after a mildly stormy course, complete recovery took place. There have been no abdominal complaints since the operation, a period of only three and a half months.

Case 8. A boy nine and a half years of age under my care since birth. Five years previously he had had his first gastrointestinal upset, consisting of vomiting and diarrhea, as an accompaniment of an acute nasopharyngitis. Following this infection nasal sinusitis became established for which the tonsils and adenoids were removed nine months later. Severe vomiting followed the operation but subsided in about twenty-four hours. Following that time for two and a half years there were periodic indefinite gastrointestinal symptoms, which consisted for the most part of unexplained pains occurring with nasal sinusitis flareups. Then a severe attack of vomiting developed. This lasted several days. Removal to a hospital for an injection of fluids was considered but was found to be unnecessary. Toward the end of this attack the patient complained bitterly of abdominal pain, but localized tenderness was not demonstrable.

Stomachache was a common complaint throughout the next year and shortly after his ninth birthday he began having severe abdominal cramps with nausea. For the first time tenderness over the region of the appendix was found. Also a rope-like descending colon could be palpated.

When the tenderness over the appendiceal region persisted, even though unaccompanied by other symptoms, it was decided to have the appendix removed. At operation a long, twisted, and tortuous appendix was removed. It was not inflamed. The patient has been entirely free of abdominal complaints since, a period of five and a half years.

SUMMARY OF THE CASE REPORTS

Eight cases have been cited (their number could be greatly augmented) each of whom has had his appendix

removed for cause. Each has been relieved of his immediate and remote symptoms referable to the gastrointestinal tract by the operation.

Our principal interest here centers around the remote symptoms, meaning thereby, symptoms of a gastrointestinal nature which had persisted without any evidence that, previous to a certain point, could relate them to disease of the appendix. They include cyclic vomiting (cases 1, 2, 7, and 8), other types of causeless vomiting, less persistent but nevertheless noteworthy (cases 3 and 4), abdominal pains of a spasmodic, sometimes fleeting, character without localized tenderness (all cases), severe and persistent constipation (case 2), premature sense of fullness with resultant loss of appetite (case 3), and diarrhea without adequate cause (cases 4, 7, and 8). Each, while often occurring alone, tended to be precipitated by all ailments attacking the individual, and often surpassed the primary disease in apparent importance.

Tenderness in the region of the appendix was accepted as the first definite clue indicating that this organ might be a factor. It was demonstrable for the first time after the onset of the remote symptoms five and a half years in case 1, seven years in case 2, four years in case 3, fourth months in case 4, seven months in case 5, two years in case 7 and four and a half years in case 8. In case 6 abdominal pain was not mentioned until about one month after my first visit. During that time abdominal tenderness had not been present, but with the first complaint of abdominal pain I was able to detect appendiceal tenderness. Whether it had been present at times of abdominal discomforts during the two or three preceding years I do not know.

Operative findings have been considered abnormal by all the surgeons performing the operations. Purse string constriction at the base was present in cases 1, 2, 6, and to a lesser extent in case 7. Here the basilar constriction consisted not so much of a circular band as of a very short meso-appendix which tied the appendix in a fixed position at an acute angle with the cecum. In case 3 the appendix was acutely kinked at its middle. That portion distal to this sharp angulation was the part involved and it was ready to rupture. In case 4, 5, and 8 the appendices were unusually long and tortuous.

Acute and dangerous inflammation was present in cases 1, 3, and 7. The parents in each instance had been warned of this possibility months to years before by the child's physician. In case 1 the mother failed to recognize the significant appendiceal tenderness for eighteen of the twenty hours before operation. In case 3 the patient was in the hospital awaiting a minor operation and the hospital attendants failed to appreciate the developing symptoms for more than twelve hours. In case 7 both parents and physician became alarmed after about two days of his abdominal complaints and shifted responsibility to a surgeon. That the case went another twenty-four hours before operation was his responsibility, not theirs, but the fact that the physician permitted this delay is ample evidence of the complexity of the factors involved.

In cases 2, 4, 5, 6, and 8 acute inflammation was absent. In each case agreement to operation was first reached between parents and the child's physician. Only

then was the cooperation of a surgeon sought, and not once out of the five instances did he feel that the gross findings at operation had not justified appendectomy. Pathologist's reports are purposely omitted from this discussion since they could, obviously, have no important bearing.

DISCUSSION

Lest those reading this paper mistake it for a kindergarten lesson in the diagnosis of acute appendicitis let me emphasize that such is not its purpose. In reporting the cases and in summarizing them it has been necessary to mention items which led to the diagnosis and to emphasize the imperative nature of the circumstances that necessitated immediate operation. I hope to make it clear, however, that interest centers on those circumstances that while preceding the possible diagnosis of appendicitis nevertheless by their presence made such a future development a reasonable prediction. It is to the degree by which the soundness of this point has been established that the worthwhileness of this effort should be judged.

Principal support for the contention that the remote symptoms have had their origin in a "crippled" appendix must come from the fact that the symptoms have been relieved after operation. Without the obstructive theory of appendicitis this observation would constitute almost the only theoretical support for that contention. That theory, however, permits speculation as to the character of the remote symptoms which has a reasonable chance of being correct. Since the final mechanism is that of complete obstruction within a "dead end" viscus it is not difficult to imagine that the earlier symptoms result from partial or temporary obstructions. Each of these attacks, then, could be interpreted as a warning that in the future obstruction will become complete and the train of events leading rapidly to gangrene and rupture will be set in motion. This is the interpretation herein accepted as the explanation of the remote symptoms in the cases presented.

If that interpretation is correct it places a large responsibility upon pediatricians for the prevention of acute appendicitis, or at least for its recognition before serious complications have developed. The remote symptoms

will not often be familiar to the surgeon, but they are the daily experience of the pediatrician or other physician caring for children. He must become aware of the existence of appendices predisposed to acute inflammation and learn to recognize the events which suggest suspicion of their presence. Then he must warn parents or attendants of the probability that one of the familiar and innocuous intestinal upsets will end in a rapidly progressive acute appendicitis.

His suspicions should be aroused whenever he meets a patient in whom intestinal (or abdominal) complaints are unduly prominent. Especially is this true if every illness regardless of its focal area is accompanied, maybe overshadowed, by complaints referred to the gastrointestinal tract. Whenever, in the observations of such a case, he is able to detect abdominal tenderness limited to the region of the appendix he is, in my judgment, justified in assuming that a "crippled" appendix is present and advising its removal at the earliest appropriate time. If, in addition, he is able to procure, through the x-ray, visual proof of appendiceal dysfunction and tenderness all doubt of the advisability of early appendectomy should be disseminated.

The surgeon has perfected his technic and abilities to cope with the acutely inflamed appendix and its complication to a degree all out of proportion to the extent to which national mortality from this cause has diminished. Essential further advance in its conquest must, it would seem, come from the direction of its early recognition so that the principles that he has evolved for dealing with the problem may be brought into play early enough to attain their maximum degree of efficiency. The greatest hope for further essential conquest of appendicitis rests, therefore, in the laps of the pediatricians because it will be for them to recognize and recommend for early operation not only cases with actual infection of the appendix but those with potential appendicitis as well.

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Children's Psychosomatic Complaints and the War*

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THE influences of war cannot be ignored today in the intelligent medical management of children. Here in the United States the impact of the world conflict is chiefly felt in the loss of a member of the family to the armed forces. In England and on the continent conditions of actual combat intensify the problem.

Despert¹ in analyzing 111 reports dealing with English, French, and Russian children concludes that there is

a definite increase in the incidence of enuresis, anxiety states, motor restlessness or instability, especially in younger children, and a questionable increase in juvenile delinquency. Gillespie² says the actual number of English children suffering psychologically from air raids has been negligible. He cites the experience in Bristol where only 4 per cent of 8,000 school children exhibited symptoms which "included general nervousness, trembling, and general aggressive behavior, and among the somatic symptoms and signs were headaches, indigestion, anorexia, enuresis, pallor, and epistaxis." Somatic disorders were

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more common in children between the ages of 11 and 14. He concludes that children adapt themselves far more readily to actual war conditions than was previously credited; that when reactions do occur, they are related either to the manifest anxiety and insecurity of parents or other adults closely associated with the child or to a pre-existing neurotic tendency within the child himself.

In this country an increase in juvenile delinquency is apparent with a definite shift from the post-adolescent to the adolescent or pre-adolescent group, and the involvement of a greater proportion of girls than boys.³ An increase in venereal infections among high school students has been reported in certain areas of the country.⁴ Large numbers of students are leaving the high schools to seek employment. Educators report a greater degree of restlessness and instability in younger children, due in part to overcrowding in the classroom and an unprecedented turnover in teaching personnel. As an example, one child known to us had six different teachers in his grade during the first half of the school year!

Despert¹ reports an increase in behavior problems attributable to the war in a group of 47 children in New York City. Bender and Frosch⁵ found no marked reactions to war among 40 children studied by them. They agree, however, that any child whose everyday ties with his parents and home are already insecure might present difficulty if the war should further threaten this relationship.

To date the physical health of our children has not been impaired by the war to any noticeable extent. However, within the past year a number of children have come to the University Hospitals with somatic complaints not substantiated by careful, thorough physical studies. In some of these cases, diligent search to discover the underlying difficulty has revealed a close correlation between the complaints and the worry and anxiety precipitated by the loss of a family member to the armed forces and the resulting disruption in family life.

In illustration brief summaries of five children encountered are presented.

Case 1. A, age 2½, was admitted to the Pediatric Clinic with the following complaints: (1) loss of weight; (2) sleeping poorly; (3) excessive genital manipulation; and (4) nervousness and irritability. Thorough physical and laboratory studies were negative.

History: After the father was inducted the mother went to live with relatives. Considerable tension and confusion developed largely due to differing opinions and divided responsibility for the child's management. Her complaints began at this time. As difficulties increased the mother decided to return to her own home. The child's behavior did not improve nor did she gain weight.

After careful study, the mother was assured there was nothing physically wrong with her child and was given helpful suggestions for future management. She had an opportunity to discuss her own anxieties and worries precipitated by her husband's induction. This enabled her to deal more effectively with her own problems as well as those of the patient. The child is improving.

Case 2. B, age 14, presented complaints of marked gastric and urinary distress beginning in November, 1943. Her illness prevented school attendance. Phys-

ical, laboratory and thorough gastrointestinal and genitourinary x-ray studies were negative.

History: Onset of symptoms occurred at the time an older brother entered the army. The parents' anxiety over the loss of their son had troubled the patient more than the brother's departure. Furthermore, she never shared any of her own worries but always kept them to herself. She wanted additional interviews, but this was impossible because the mother insisted she return home.

Case 3. C, age 9, complained of partial loss of vision, staggering gait, poor sleep habits, and many vague gastrointestinal symptoms. Physical, laboratory, and x-ray studies, including consultations with the outpatient departments of ophthalmology and neurology, were negative.

History: The family had been in poor circumstances due largely to the father's poor health. Our patient was the youngest, by six years, of a family of six children. Though the presenting complaints had existed in mild form, they suddenly became progressively worse following the induction of two of his older brothers.

The patient improved when attention was directed to the underlying difficulty and the mother attained greater insight into the real nature of his complaints.

Case 4. D, age 12, complained of marked abdominal pains, anorexia, an occasional attack of vomiting, insomnia, marked weakness and malaise which interfered with social and school adjustment. Thorough physical studies were negative.

History: Long and varied succession of illnesses and complaints since early infancy. Patient managed fairly well until two years ago when her complaints increased in severity and frequency following the induction of an older brother, her favorite. She was very dependent on him and felt keenly his absence from home. Increased parental concern has complicated the problem.

The patient is under observation at the present time. In view of past history the prognosis is guarded.

Case 5. E, age 6, complained of insomnia, anorexia, vomiting and weight loss due to a self-imposed diet of several weeks duration consisting of bread and milk. Physical findings were essentially negative.

History: Patient had previously been well and healthy. As an only child she may have been "spoiled." When the father entered the service the family accompanied him to his post. Living arrangements and daily routine were not wholly satisfactory. Parental tension increased. About the time an order came to stand ready for active duty the parents had a quarrel. Following this the patient's complaints began. With the onset of symptoms, parental overconcern aggravated the problem.

COMMENTS ON CASES

These summaries briefly illustrate the development of complaints in children subjected to the additional stresses and strains brought on by the war. The difficulties in the youngest child (case 1) developed out of confusion experienced when suddenly confronted with too many persons interested in her welfare. Reinforcement of the mother's anxiety over her husband's induction was an important factor. In the remaining cases there was evidence of the patient's having been previously high-strung and nervous. In ordinary times they might have presented

no further problems, but the threatening demands of war served to increase their basic insecurities and they developed complaints.

Many fathers have already been inducted. More will be soon. As disruptive influences in family life continue a significant increase in the problems our children face seems inevitable. Many will seek refuge in developing somatic complaints and will need help. Basic physical studies proving negative, exploration of emotional tensions in the mother, the child, or both, should result in a better understanding and management of the underlying disorder.

"War or no war, the pressing needs of parents with problem children cannot be ignored. Increasing demands from parents . . . indicate that anxiety regarding their children's day to day difficulties takes precedence, even in these times, over the remoter fear of death and destruction."²

DISCUSSION

Anxiety is an unpleasant feeling state closely related to fear but differing from it in that there is no apparent external threat to the individual involved. As one of the various protective mental mechanisms, it is a normal response in certain situations. Its absence in such circumstances may indicate faulty emotional development. Excessive anxiety, however, is one of the commonest symptoms of emotional imbalance. Physicians have been aware of its importance in adult medical problems for years. Beverly³ states that though originally thought to be rare or non-existent in children, it is now known to be fairly common.

The sources of anxiety are manifold. Constitutional predisposition, fatigue, and impairment of physical health all play an important role. Fright and shock have been held responsible for the development of anxiety states in children. The consensus is, however, that such incidents serve only to crystallize pre-existing vague, ill-defined tensions not previously recognized. The underlying and most significant source of anxiety is the dissatisfactions which accrue from sustained severe frustrations in everyday living.

Anxiety is commonly communicated to the child by the atmosphere of the home. A worrisome mother, friction and strain between parents, expectations incommensurate with the child's ability, lack of understanding, the child's fear of the unknown, inadequate outlets for pent-up mental or emotional energies, and a belief based on reality or fancy that he is not wanted, are telling factors. Under war conditions, anxieties of adults multiplied by the uncertainties of the future, loom large.

When excessive, anxiety may be resolved (usually only temporarily) in various ways. The child may become aggressive, may fly into rages and have temper tantrums, or gradually withdraw from active participation in everyday activities and become a shy, inhibited person. He may develop somatic complaints.

Severe anxiety influences the body. During an attack, the heart beat increases, respiration becomes more rapid, perspiration is often profuse, gastrointestinal and genitourinary activity is altered, and muscle tension increases. The child may vomit, faint or exhibit some other manifestation of physical symptoms resulting from overstimulation of the autonomic nervous system.

With the appearance of such symptoms, the adult develops immediate concern, believing the child to be ill; the child gets temporary relief and security from the attention accorded him; the symptoms become more fixed, and a vicious cycle is initiated.

DIAGNOSIS AND TREATMENT

Early diagnosis is important though not always easy. In the absence of physical findings, careful attention to detail in the history and painstaking search for the occurrence of unusual threatening events at time of onset of symptoms is required. Critical review of family circumstances, atmosphere, and relationships may be suggestive. An evaluation of the child's personality and his reactions to his illness is important.

Giving the parent strong reassurance of the patient's physical condition and a frank appraisal of the total situation is the first step in treatment. Relief of parental concern and correction of faulty attitudes through discussion and explanation are essential. Attention to daily routines—sleeping, eating, recreational interests, school progress—is necessary. A judicious use of sedation when the symptoms are severe may be advisable.

As a general rule the above program will suffice for younger children. The older child often requires direct treatment during which free discussion with him is encouraged. Admission to hospital or placement in a foster home should be resorted to only in severe cases and then only when more intensive individual treatment of the child is possible.

SUMMARY

A number of children with somatic complaints not substantiated by careful physical studies have been observed. In the cases cited a close correlation has been noted between the complaint and the disturbed emotional states caused by disruption of family life due to the war. We believe the recognition of this relationship is vital to better understanding and management of these patients. General principles governing diagnosis and treatment have been outlined.

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Observations on Infantile Paralysis*

Its Symptoms and Treatment

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FOR almost four years, the Departments of Physical Therapy and Orthopedic Surgery of the University of Minnesota have been carrying on a study of the symptoms and treatment of infantile paralysis.[†] The attempt has been made during this time to crystallize and evaluate the concept and treatment of the disease presented by Sister Elizabeth Kenny of Australia. A preliminary report¹ was presented in June, 1941, covering the acute cases treated in the fall of 1940 in which it was concluded that the results obtained were sufficiently encouraging to warrant continuation of the study. In such a variable disease as infantile paralysis it is obviously impossible to draw satisfactory conclusions until the cases have been observed for several years. Another statistical study is being prepared at the present time but is not yet ready for publication. However, our knowledge both of the treatment method and its effect upon the course of the disease has increased and my own personal ideas have been fairly well crystallized at the present time.

Miss Kenny's concept of infantile paralysis has been summarized as follows:²

"Infantile paralysis is an acute infectious disease caused by a filterable virus in which the invading agent or its product attacks and produces varying degrees of injury, disorganization and disintegration of the neuromuscular system manifested clinically in the acute stage by:

1. Muscle Spasm.
2. Mental Alienation of Muscle (nerve-muscle dissociation).
3. Incoordination of Muscle Action.
4. Muscle Weakness and Paralysis.

"Muscle Spasm, the universal symptom of acute infantile paralysis, is the earliest and most important single objective finding in the disease. This is a hypertonic condition affecting the muscles, marked by persistent involuntary contraction of the muscles affected, present in every case where the diagnosis is definitely established. It is usually associated with pain, tenderness and hyperirritability of the involved muscle. Such muscles, being maintained in hypertonic contraction, are unable to relax or lengthen and tend to remain in a persistent state of shortening if untreated.

"Mental Alienation of muscle, or pseudoparalysis, is a condition appearing most commonly in the muscles opposed to those in spasm. Alienated muscles appear toneless and incapable of voluntary contraction but are never painful or tender, indicating that they are not the muscles involved directly by the disease. Such muscles become divorced or dissociated from the motor centers presumably by some physiological block in the continuity of the nervous pathway. Effective early treatment will restore alienated muscles to useful function.

"Incoordination of muscle action is a condition frequently associated with muscle spasm and mental alienation but represents a disorganization of the regulating motor centers of the nervous system. The resulting misdirection of nerve impulses considerably disturbs the smooth rhythmic action of muscles in producing orderly and effective joint motions in the region involved. Incoordination becomes permanent and seriously adds to the patient's disability unless proper steps are instituted early in the disease to combat the condition.

"Muscle Paralysis, or partial paralysis, represents a loss of power in all or part of the fibers of a muscle and is presumably a result of the injury or destruction of the anterior horn motor

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cells of the spinal cord supplying those muscle fibers. This condition would represent an organic or structural interruption of the nervous pathway from the motor centers to the muscle. Such muscles may recover to some degree depending upon the severity of damage to the anterior horn cells. Actual palsy or complete motor denervation of muscles, however, is not a common feature of the disease."

In this paper I would like to present my own opinion as it exists at the present time. This is not the opinion of Sister Kenny nor is it necessarily the opinion of anyone else upon the associated medical staffs. In order to present this opinion logically, I would like to present first a very brief discussion of the clinical picture of infantile paralysis as I see it.

The clinical course of the spinal type of infantile paralysis may usually be divided into three stages: the prodromal stage, the stage of increasing neuro-muscular involvement, and the stage of recovery from neuro-muscular involvement.

PRODROMAL SYMPTOMS

At first the patient complains of upper respiratory or gastrointestinal symptoms usually accompanied or followed by headache which is often severe.

The upper respiratory symptoms may consist only of a mild coryza or pharyngitis or may be very severe with chills and high fever simulating pneumonia. Fever is usually present. It may reach 105° F., but is more frequently in the neighborhood of 101° F. It may be completely absent, however, even in the presence of paralysis. Frequently at the onset the case is diagnosed as influenza because of the fever, headache, coryza, backache, and muscle pains which are present.

The gastrointestinal symptoms consist of nausea and vomiting and constipation most frequently. Diarrhea may sometimes be present. Occasionally acute appendicitis may be diagnosed during the early stages of the disease and operation performed because of the nausea and vomiting, pain in the abdomen, and muscle spasm which may even be localized in the right lower quadrant. Urinary retention is common in the first week of the disease.

Irritability is frequently present. The child does not want to be touched or held and often screams with pain or apprehension of pain when he is approached. Drowsiness and somnolence may be present for a few days. It is very rare for this to last more than five to seven days, however. If it lasts longer than that, encephalitis should be suspected.

During this early stage, reflexes are often hyperactive and the Babinski may be positive.

These prodromal symptoms last for one to six days before the muscle symptoms start to appear. Usually muscle shortening develops insidiously in muscles which have been painful before. There is no clearcut line of demarcation between the prodromal stage and the stage of muscle involvement. Sometimes new prodromal symptoms appear a week or two after the onset of the first

symptoms and increased muscle involvement may also occur at that time. Occasionally the prodromal stage may be completely absent and the muscular symptoms may be the first changes observed.

MUSCULAR SYMPTOMS

Usually the first symptoms of muscular involvement are signs of muscle shortening. These are first shown by stiffness of the neck (shortening of the posterior neck muscles), stiffness or rigidity of the back (shortening of the back muscles), and limitation of straight leg raising, positive Kernig's sign, or positive Brudzinski's sign (shortening of the hamstring muscles). These so-called meningeal signs are usually the first to appear and are often the last to disappear. They do not at all parallel the appearance or disappearance of cells in the spinal fluid and do not correlate in severity with the quantity of cells present in the spinal fluid as has been claimed by Lewin.³

Neatly all of the usual signs described by observer's names are merely expressions of muscle shortening in various locations. Some of these are: Cawley's sign (stiff neck and back), Levinson's sign, Kernig's, Budzinski's, Ruitah's sign (head drop), Kramer's sign (shifting position from side to side in attempting to sit up), Amoss' sign (tripod).

Most of these signs involve the neck, back, and hamstrings but other muscles may also be shortened. Some of them group either as a whole or in minor, latissimus dorsi, fingers, adductors of thighs, tensor fascia femoris, sartorius, abductor pollicis longus, short flexors of toes and quadratus plantae, quadratus lumborum, sterno mastoids, quadriceps femoris, triceps brachii, intercostals, lateral abdominals, and the diaphragm.

The course of muscle shortening follows a fairly uniform general pattern. During the very acute stage while the patient is still showing fever, malaise, and other signs of the infective process, the muscles are tender to pressure or stretch, any motion aggravates their tendency to shortening, and severe pain may even be present at rest. Occasional patients show very little if any pain associated with the muscle shortening, but even these will usually show evidence of pain if the muscle is stretched. However, pain does not correlate accurately with muscle shortening. Pain may occasionally be present in muscles which are not short.

The shortening during this stage may be of any grade of severity. It may be so mild that it is very difficult of detection. Palpation may not show it and resistance to motion may be too slight to be detected by the average examiner. However, some abnormality of position or change in contour of the skin will betray its presence. On the other hand, it may be so severe that the patient cannot be kept in one position more than a few minutes at a time. Even powerful sedatives may not relieve it.

It is during this stage of acute spasm that the high temperature, quick-cooling fomentations advised by Miss Kenny² are most valuable. The treatment should be begun at the earliest possible moment because the shortening is most easily corrected during this stage. Great care must be taken not to handle the patient any more

than is absolutely necessary to make the diagnosis. The production of pain by movement is absolutely contraindicated.

As the disease progresses the painful hypertonicity becomes less and less evident and becomes replaced by an apparent structural change in the muscle with a lack of extensibility rather than a tendency to shortening. The muscle responds to stretching by a contraction which may be painful, but it can be moved through a range within certain limits without pain or resistance. During this stage packs of lower temperature accompanied by careful stretching of the shortened muscle are more efficient in restoring mobility to the part.

Recovery from muscle shortening may occur spontaneously especially if patarosis is not severe and is probably accomplished by natural active movement of the part. However, recovery sometimes does not occur even in non-paralyzed cases. This seems a most likely explanation for the late deformities, especially scoliosis so frequently seen after so-called non-paralytic poliomyelitis. It is most essential that normal muscle extensibility be restored if future deformities are to be prevented.

Very rapidly following the signs of muscle shortening, signs of muscle weakness may appear. Many patients never develop muscle weakness but all develop muscle shortening in some locations. I can find no correlation between muscle weakness and muscle shortening either in severity or distribution during the acute stages of the disease.

The onset of loss of muscle function may be extremely variable. Usually weakness appears in one extremity first and then another and another until the full extent of involvement has occurred. Usually there is a gradual decrease in the power of the involved muscles over a period of several hours or days until complete loss of strength has occurred. Occasionally very sudden and severe involvement may occur in a very short time so that the individual's first knowledge of paralysis comes when he is unable to walk after getting on his feet. In most instances, however, a definite period of time is consumed in the development of the muscular weakness.

When signs of the acute disease have subsided, involvement has nearly always reached its maximum. Occasionally a recurrence of fever with increase of involvement may occur. This is the rare diomeday type. There is almost never any increase of involvement after the fever has dropped to normal and has remained there for a few days.

Now the stage of recovery begins. Not infrequently some recovery occurs before the patient enters the hospital if a week or more has elapsed between the onset of the disease and hospital admission. This recovery may be both from shortening and from muscular weakness. Again there is an extreme variability both in the rate and pattern of recovery. As far as spasm is concerned, recovery usually begins first in the neck and is last in the back and hamstrings. Recovery from muscle weakness is usually pretty general for an extremity or part of an extremity, although certain muscles may lag far behind others in their recovery or may never function. There is no clinical method by which recovery may be predicted. One leg may be apparently as completely involved as

another and yet one may recover and the other never regain a trace of power.

The recovery stage begins immediately after the stage of increasing involvement has ceased and continues not only for months but often for years. However, the greatest spontaneous recovery in muscle power usually occurs within a few months. If severe muscle weakness is present after a year, it can be predicted with a great deal of accuracy that some muscle weakness will be present for many years or for life.

Recovery of useful function, however, depends upon more than recovery of muscular power. The factors of muscle shortening and rhythmic action must also be taken into account. A great deal of the muscle shortening may relax spontaneously, especially if there is power in the opposing muscle. Probably constant exercise and stretching of the short muscle in everyday duties is at least partly responsible for this recovery. Many patients, however, especially those severely involved but sometimes also the so-called non-paralyzed ones, do not undergo complete spontaneous recovery from muscle shortening. Examination twenty or thirty years after the disease in some cases has revealed that muscle shortening was still present.

It is almost the rule that untrained polio patients carry out ordinary motion in an inefficient manner, using incorrect muscles, making substitutions for weak muscles, sometimes using antagonists of the desired action. This is even more true of those who are using supports or braces even with training than in the untreated case.

POSSIBLE EXPLANATIONS FOR THE CLINICAL SYMPTOMS

This brief summary of the clinical course of infantile paralysis makes it obvious that the clinical manifestations of infantile paralysis may be grouped under three headings: (1) factors causing muscle shortening, (2) factors causing loss of muscle function, and (3) factors causing inefficient muscle function.

In order to discuss the possible or probable mechanisms of these factors, we will take them individually.

I. FACTORS CAUSING MUSCLE SHORTENING

1. *Meningeal irritation.* In the past the usual explanation for the neck, back, and hamstring shortening has been "meningeal irritation." Lewin states,³ "Stiffness of the neck is due to post-nuchal muscle spasm caused by inflammation or irritation of the dorsal ganglia, nerve roots, and meninges. This usually runs parallel with the increase in the number of cells in the spinal fluid." He attributes the stiffness of the back to the same mechanism. I cannot agree with this explanation. These signs are usually the first to appear and the last to disappear. Severe neck and back rigidity may be present when only a few cells are present in the spinal fluid or even when they are totally absent. It may be mild in the presence of cell counts of 200 or 300. Whereas the spinal fluid cell count usually disappears rather quickly, becoming normal within a week or two after the temperature becomes normal, the shortening of back and hamstring muscles usually persists for months after the acute stage of the disease is past. Kabat and I⁴ have demonstrated

that a neurogenic mechanism causing hamstring shortening is present after several months.

Therefore, it seems that some other or additional mechanism must be responsible for this muscle shortening.

2. *Hypertonus.* Some muscles seem to be continuously short as though a condition of hypertonus were present. For example, elevation of the shoulder may be the result of continuous shortening of the upper portion of the trapezius muscle. This may be present without the presence of weakness in antagonist muscles. The exact mechanism for the production of this type of shortening is unknown. It seems to be of neurogenic origin. Schwartz and Bouman⁵ found electromyographic evidence of hypertonus in many muscles in poliomyelitis; however, Watkins, Brazier, and Schwab,⁶ and Moldaver⁷ were unable to find these changes in muscles at rest.

3. *Hyperirritable stretch reflex.* Many muscles have free motion within a small range but will contract sharply when stretched beyond that range. This stretching is usually painful and the hyperirritability is aggravated by repeated stretchings. These muscles usually have innervation and are under voluntary control, but the hyperirritable reaction is not under voluntary control. All of the investigators have reported electromyographic evidence of the presence of this condition. Watkins et al⁶ state, "During the acute stage this (passive stretching) frequently brought out electrical discharges of a voltage higher than any which can be elicited from normal muscles by such manipulation. Moreover, these discharges would persist for some time after the passive stretching had been released."

4. *Changes within the muscle.* Kabat and I⁴ have shown in two cases given spinal anesthesia fourteen months after the onset of poliomyelitis that relaxation of the muscle shortening did not occur.

It is obvious, therefore, that at least in the late stages the neurogenic cause for muscle shortening has been replaced by a mechanism that resides within the muscle itself. This may be a result of fibrous tissue replacement of denervated muscle fibers, for it is well known that fibrosis frequently occurs in the late stages of infantile paralysis.⁸ It may be a myostatic contracture produced because the muscle has not been stretched to its full length over a long period of time. Or it might be a result of metabolic changes or products within the muscle fiber which prevent the muscle from being elongated. One might compare it to a rigor mortis. This might serve as an explanation for the contractures which develop in totally denervated muscles. It might be the explanation for a great deal of the so-called muscle spasm which often seems to resemble a lack of extensibility rather than an active shortening.

5. *Muscle fasciculation.* So-called fibrillary twitchings are not infrequently seen in poliomyelitic patients not only during the acute stage but sometimes for many years. During the acute stage of the disease these twitchings are usually interpreted as indicating a destructive process in the neurone which may eventuate in destruction of that motor unit.

One patient apparently had a diffuse loss of synaptic resistance, for tapping his chest with the finger would cause contraction of muscles not only in the vicinity but

also in both arms which could only be compared to strychnine poisoning. This condition was still present a year after the onset of the disease.

6. *Pain.* While muscle shortening is usually associated with pain, it is not necessarily so associated. Occasional patients will have muscle shortening without pain or hypersensitivity. One child of four years cried with pain when one leg was touched but said nothing when the other was moved about, even though the hamstrings of both legs were so short that the knees were continually flexed. It is not unlikely that the pain can be explained on the basis of changes in the posterior horns of the spinal cord which have been frequently described. Conscious pain is not the cause of the spasm, however, because we have found⁴ that intravenous pentothal anesthesia does not abolish the shortening even when the patient is unconscious. The muscle reflexes must be abolished before the shortening is relaxed.

7. *Muscle imbalance.* In the past "muscle imbalance" has been cited as the cause of deformity or shortening of muscles. According to this idea, because of weakness in one muscle the relatively greater strength of its opponent causes an increase in muscle tonus which pulls the part out of position and results in deformity. Moldaver⁷ states, "The last and the most persistent type of 'spasm' is that due to the increase of the normal tonus in strong muscles." However, both he and Watkins, et al., claim that there is no electrical evidence of such a "spasm". I have become convinced that muscle imbalance as a cause of muscle shortening is a myth. If the shortening is treated adequately, muscle imbalance may be present to a marked degree without causing deformity. We have a number of patients where a weak or "zero" muscle is opposed by a strong muscle with no tendency toward deformity. Another argument against this idea is the fact that some of the worst contractures occur in muscles with no volitional power at all. This has been not only our experience but also that of Steindler, Russin, Sheplan, and Wolkin.⁸

In fact, we do not find that muscle shortening has any relationship to muscle power. A muscle which is severely shortened may have any degree of voluntary strength from nearly normal power to complete loss of power. Likewise its opponent may have any degree of volitional strength from normal power to absolute lack of strength.

From this discussion of some of the factors causing muscle shortening it is obvious that the subject is very complex and is not well understood at present. A great deal of careful study and research will be required before the subject can be thoroughly understood. It is my conviction, however, that muscle shortening or "spasm" as it is called by Miss Kenny is a positive entity which should be treated energetically and overcome completely if the patient is to obtain the best possible functional result.

II. FACTORS CAUSING LOSS OF MUSCLE FUNCTION

Loss of muscle function may be temporary or permanent, partial or complete. The onset of paralysis may be sudden or gradual. Usually it develops during the febrile stage of the disease. It is not ordinarily sudden and widespread but develops in one extremity and a day or so later develops in another extremity. The involvement is

characteristically "spotty" in distribution. It may involve only a few muscles in an extremity or it may completely involve the extremity. It is usually not symmetrical in distribution.

Recovery of function may occur spontaneously or only after extensive retraining. Recovery has usually been explained by the supposition that the virus has invaded the anterior horn cell and has injured it enough so that the cell has ceased functioning. However, if the virus did not destroy the cell completely, it recovers function spontaneously after a variable length of time. Other explanations have maintained that edema due to the inflammatory changes present has interfered with function by pressure on the cell, and subsidence of the edema causes recovery of function. Loss of blood supply with anoxia of the anterior horn cell has also been used to explain the spontaneous recovery in poliomyelitis.

Sister Kenny has demonstrated that motor nerve pathways may recover without spontaneous return of function. Very careful retraining and re-education of muscles is necessary before function will return in these cases. She has designated this condition as "mental alienation," a very unfortunate term because it implies a psychologic cause of loss of function which is not justified by the clinical observations. As stated above there seems to be no correlation between clinical muscle shortening (spasm) and loss of function either in that muscle or its antagonist. Therefore, I would conclude that the idea of "mental alienation" is incorrect.

The factors that cause loss of muscle function may then be listed as follows:

1. *Complete denervation.* This would result in permanent complete paralysis, with no recovery possible. Fortunately this apparently rarely if ever occurs. Some small number of muscle fibers retain enough innervation so that minimal function seems to be present. I have yet to see a patient with one good leg who has been unable to walk without braces on the bad leg if treatment were started early and carried on persistently.

2. *Partial denervation.* Some muscles or extremities never regain full strength. These are assumed to have suffered destruction of a sufficient number of motor units so that complete return of power does not occur. However, these muscles may be trained to useful function in most instances.

3. *Temporary denervation.* Some muscles are temporarily paralyzed but recover function after a variable period of time. These may be divided into two classes (a) Those that recover function spontaneously. These include by far the greater number of cases. (b) Non-functioning muscles that need re-education. Some muscles lose function for some reason and go for a long time in a non-functioning state but can be retrained to function months or years later. These are the muscles that really come under the heading of "alienation". I believe that the psychologic mechanism rarely if ever occurs. These muscles may have lost their power to function by any of several mechanisms: (1) the virus may have injured the cell but not destroyed it. The cell could then recover but not function until retrained. (2) The virus may cause a disturbance in the synapse which prevents function until retrained. (3) There may be dam-

age to associational or internuncial neurons which might destroy established pathways so that re-education is necessary. Whatever the mechanism, this condition does occur although it is not frequent.

4. *Mechanical causes.* Sometimes muscles cannot function because their antagonists are so shortened by the disease that they are placed at such a mechanical disadvantage that useful movement is impossible. These muscles are often also partially denervated. With recovery from the muscle shortening which may be spontaneous or only after extensive treatment, function returns. The return of function in the anterior tibial muscle after an operative lengthening of the tendo achillis is a striking example.

How much of the paralysis of poliomyelitis is due to factors which cannot be influenced by treatment and how much is due to factors which can be treated successfully can be determined only by long continued observation of cases with and without satisfactory treatment. I doubt that any really satisfactory conclusions can be drawn in less than ten years.

III. FACTORS CAUSING INEFFICIENT MUSCLE FUNCTION

In infantile paralysis, as in other conditions involving disturbances of the neuromuscular apparatus, there are factors present which tend to decrease the efficiency of muscle function. Whether these factors are a result of pathologic changes within the Central Nervous System or are merely expressions of peripheral weakness as claimed by Watkins, et al.,⁶ and Moldaver,⁷ is immaterial from a clinical point of view.

Watkins⁶ has shown simultaneous action currents in agonist and antagonist in poliomyelitis and has called it "disturbed reciprocal innervation." This may be a good term.

The clinical facts are that without muscle training the poliomyelitis patient usually attempts to employ any and all muscles indiscriminately in performing any difficult action, thereby decreasing rather than increasing the favorable results of the attempted motion.

If the patient is allowed to have his own way he will use the strong muscles and neglect the weak ones, thereby making his plight worse rather than better. Careful training under manual control by an experienced tech-

nician, however, may increase the efficiency of muscle function by:

1. Eliminating interference from shortened antagonists.
2. Developing maximum power in weakened muscles by insisting that the patient use the weak muscle instead of the stronger one which could be substituted for it.
3. Training the antagonist to relax while the agonist is functioning.
4. Developing rhythmic action to the ultimate degree.
5. Keeping up the patient's morale and enthusiasm during the long and tedious process of recovery.

CONCLUSIONS

1. A brief resume of the clinical course of the spinal type of infantile paralysis is given.
2. Muscle shortening is a positive entity in infantile paralysis and is an important factor in the final functional end-result. The emphasis laid upon muscle shortening by Sister Kenny is an important contribution to the treatment of infantile paralysis.
3. "Mental alienation" is probably only a minor factor in infantile paralysis and is probably not psychologic in origin as thought by Miss Kenny.
4. Maximum efficiency of muscle function within the limits imposed upon it by denervation is the aim of treatment and the explanation for the good results obtained.

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Book Reviews

Feeding Babies and Their Families, by HELEN MONSCH and MARGUERITE K. HARPER. New York: John Wiley & Sons, Inc., 386 pages, 1943, price \$3.50.

This book presents an interesting approach to the subject of nutrition. Not only is there up-to-date information for the feeding of the infant and small child, but all the factors which may influence feeding also are considered. In addition, the background for the infant's state of nutrition is emphasized and the future of the child's nutrition is revealed in its relationship to the other members of the family who live and grow along with the child. With so many books on feeding now available, it is fairly difficult to present one which is both interesting and edu-

cational. However, the authors have been able to put forth something which really appears to be new in the field of nutrition. The information which they have gathered and the interpretations which they have made are accurate, scientific and of practical value. The book is highly recommended.

A Safer World for Babies, Evaporated Milk Association, Chicago; 16 pp., 1944.

A booklet especially about feeding the baby; designed to help the mother follow instructions which the doctor will provide. It discusses what evaporated milk is, the preparation of formulas, what utensils are needed, supplementary foods prescribed by the doctor and gives some hints on baby care. The distributors intend that this piece of printed matter shall save time for the doctor and insure his instructions being heeded. Available free on application to the Association, 307 N. Michigan Ave., Chicago.

(Continued on page 170)



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LIVING MONUMENTS

William James once said "The great use of life is to spend it for something that outlives it."

That is exactly what the members of the medical profession are doing every day and in a double measure. They spend their lives not only for that which shall survive them in this sense but in order that others may live. Hence they may, in a measure, be accredited with some of the future accomplishments of those whom they have saved. Pediatricians, according to this line of reasoning, have the edge on the rest of the fraternity because their patients have a longer part of their life span remaining and the sum total of their possibilities is accordingly greater.

The picture entitled "The Doctor" has probably had more widespread appeal than any other painting. The central theme is thoughtfulness on the part of the physician as he studies the symptoms of the sick child lying

in the bed before him. Naturally he looks for changes of color on the face, rhythm and frequency of respiration; he listens for unusual sounds, the expiratory grunt of pneumonia, the air hunger and characteristic breathing of laryngeal diphtheria. He is pleased at observing restful sleep and disturbed by the appearance of nervous twitches. All this guides him in the treatment of the patient. But in addition to these purely professional considerations he is doubtless meditating too upon the potentialities in that little body. He is aware of the high hopes that the grief-stricken parents must have for their child whose life is now endangered and intrusted to his care.

Many are the benefits handed down to future generations by great men and women in their times. Nearly everyone strives to leave something of a material kind to surviving members of his family. But to no other class in like manner is given the special function of furthering the extension of life itself.

A. E. H.

EMBARRASSING GUESTS

Today many physicians of the not-too-old group look back on their postgraduate adventures in Vienna and Berlin as the high point of their medical training. No one can deny that American medicine and our medical schools owe an enormous debt to the Germany that was. Medical teaching in our schools was revolutionized when in the 80's William Welch brought back from Europe Germany's methods and there is not a school in the country today that does not owe most of its success to the laboratory teaching first developed in Germany. Up until World War I the famous German and Viennese clinics were the Mecca of all medical graduates. Came the Fuehrer and with him the final blow to Germany's medical leadership. But by a curious ironical twist, Germany has now presented America with another great gift, this time that of many, perhaps most, of all Europe's creative minds. There is scarcely an acre of the American fields of science and art that has not been energized and made more fruitful since the mad dictator started out to make over the world. Consider that already eleven Nobel Prize winners have become American citizens, two of whom are famous physicians; Dr. Karl Landsteiner who classified human blood into its four types, and Dr. Otto Myerhof, the Berlin biochemist.

We have scarcely begun to realize the benefits this gift of Herr Hitler's will bring American culture. Relatively little publicity has been given the thousands of exiles now Americans and working for us in military matters, or to those quietly carrying on their research in our universities. The absorption of these men and women who had won fame in their own countries has presented no problem. We are proud to have them. But there is nevertheless an embarrassing feature to this gift of Hitler's. And to the medical profession the most embarrassing is the 6,000 physicians, most of them highly trained and potentially of great value, who have come to us penniless but eager to prove their worth, and who somehow must be absorbed by us. Nearly 100 per cent are either already American citizens or are in the process of becoming such. Of these 6,000, Germans and Austrians make up 84 per cent; 73 per cent of these were graduated before 1933 and hence cannot be suspected of having been infected by Hitler's brand of science. Three thousand have been placed by the National Committee of Resettlement of Foreign Physicians and other agencies, in hospitals, laboratories and private practice (mostly in rural communities). But there remain 3,000 who are barred by legal restrictions from professional work. It is the problem of their absorption that has aroused often bitter controversy within medical groups all over the country.

To the average layman this additional supply of doctors at a time when the cry for more medical men rises from both military and civilian throats, seems like an answer from heaven. But to American doctors it is far from being that simple. Many are seriously disturbed lest they will return from their war services to find themselves crowded out by the foreign invasion. All over the country measures are being discussed and adopted to "protect" American doctors from the threatened foreign competition. Innumerable hurdles and fences are erected

to hold it back. In about half the states full American citizenship and a year's internship in an American hospital is required before the examination for a license can be taken; in Minnesota, North and South Dakota and Montana no foreign school is "recognized", and hence graduates of foreign schools cannot take the examinations; the National Board of Medical Examiners have imposed so many restrictions that actually only a few present themselves as applicants.

To the hundreds of exiled physicians congregated in the great cities on the Eastern coast, supported by philanthropic societies or friends, waiting and longing to fill our demands so that they may use their skill and training, these restrictions doubtless seem as vacillating and confused as does our foreign policy to so many of our commentators. It would seem that some clear-cut country-wide policy will have to be formulated, and perhaps it will be if our hospital staffs continue to be depleted and the need for medical service in urban and rural communities keeps growing. But thus far the only suggestions that have been offered have been unsatisfactory makeshifts. Let us hope that American doctors will find a solution before the public wrathfully demands that the government find one.

M. U.

BOOK REVIEWS—(Continued from page 168)

A Manual of Endocrine Therapy, by BERNARD L. CINBERG, B.A., M.D.; Brooklyn: Chemical Publishing Co.; 178 pages; 1942. Price \$3.25.

This little book is a condensed discussion of dysfunctions of endocrine origin and their treatments.

The first portion of 122 pages gives a review of the treatment of diseases or malfunctions of the various endocrine organs. At the end of each chapter there is a list of preparations used, giving their trade names and their manufacturers, which is an excellent idea.

The next 42 pages are devoted to a brief discussion of diagnostic procedures. The next 12 pages summarize therapy.

The whole effect is an excellent note book on endocrinology, covering the subject succinctly and inclusively. It should prove valuable to the busy practitioner as a ready reference.

Pain, Proceedings of the Association for Research in Nervous and Mental Diseases; Vol. 23; Research Publications, Baltimore: Williams and Wilkins Co.; 468 pages, 116 illustrations and 19 tables; 1943. Price \$7.50.

A volume comprising a most excellent and complete review of the subject of pain. It is made up of a series of well-chosen topics by well known investigators. The individual subjects are described in a brief and concise manner. The experimental material is well integrated with its clinical applications, thus greatly enhancing the value of these studies, particularly for the clinician. This treatise also contains complete comprehensive reviews of such widely used procedures as rhizotomy, tractotomy, and chordotomy. Since "pain" in almost every region of the body is discussed, this book should prove of great value to physicians in almost all fields of specialty.

Pain, by SIR THOMAS LEWIS, M.D., F.R.S.; New York: Macmillan Co., 192 pages, with index, bibliography, illustrations; 1942. Price \$3.

This book presents a fairly condensed resumé of the mechanism of human pain. The review has been correlated with numerous observations from the author's own experimental work. Considering the subject, this treatise is surprisingly easy to read. Since the clinical applications are not emphasized, this book will be of greatest interest to those particularly interested in the field of neurophysiology.

News Items

Dr. E. L. Touhy of Duluth, Minnesota, was elected president of the Minnesota State Medical association at its annual meeting held in Rochester, April 12 to 15. Dr. S. A. Slater of Worthington was elected first vice president, Dr. J. A. Borgen of Rochester, second vice president, Dr. B. B. Souster of St. Paul reelected secretary and Dr. W. H. Condit, Minneapolis, treasurer.

Dr. L. W. Backert of Big Timber, Montana, was elected president of the Park-Sweet Grass Medical society at a recent meeting held in Livingston. Other officers elected for the year are Dr. Dan R. Bennett, vice president, and Dr. Eloise M. Larson, secretary-treasurer.

Dr. R. P. Peterson of Butte represented Montana cancer control agencies at the American Society for the Control of Cancer at its annual meeting in New York City.

Dr. J. L. Yuhas of Missoula, Dr. Fred J. Hemernik of Billings and Dr. A. W. Ide of Glendive were licensed by reciprocity by the Montana state board of medical examiners at its semi-annual meeting. Following to be last item

Captain I. L. Schuchardt of Leola, South Dakota, has been given an honorable retirement from the Medical Corps because of physical disabilities incurred while serving in the Pacific area. After a rest he will reopen his practice in Aberdeen. Captain Schuchardt volunteered for service early in 1942 and was commissioned a first lieutenant. He served in Australia, New Zealand and New Guinea where he participated in the Papuan campaign. He holds two unit citations from General MacArthur. He was returned to this country in 1943 and was hospitalized at San Antonio, Texas. He has now rejoined his family in Aberdeen.

Captain Arnold H. Hohf, graduate of the School of Medicine at Vermillion, South Dakota, and of Rush Medical College in Chicago, is now stationed in the Neptune sector in Italy. Captain Hohf's hospital unit served for six months in French Morocco, Africa, and was transferred on January 31 to Italy.

Dr. John F. McKie who came to Hot Springs, South Dakota last summer from Sturgis, has joined the medical staff of the veterans' administration facility and has reported for duty at Milwaukee. Dr. McKie held a captain's commission in World War I.

Dr. Franklin T. Younker has moved from Galesville, Wisconsin, to Sisseton, South Dakota, where he has opened an office. He was active in conservation work and a member of the board of county commissioners while in Galesville.

Vice Admiral Ross T. McIntire was the main guest speaker at the meeting of the Minnesota State medical meeting held in Rochester April 13, 14 and 15. The admiral spoke to the scientific session on the control of tropical diseases, and at the banquet, Friday evening, he spoke of the services of the Navy doctors on ships and in hospitals in saving the lives of fighting men.

Dr. Paul Dressel of Elkton, South Dakota, has been promoted to the rank of captain in the medical corps. Dr. Dressel is stationed in the Sierra ordnance depot at Herlong, California.

At a meeting of the Northwest District Medical Society held at Mobridge, South Dakota, April 2, 1944, Dr. W. A. George, Selby, was elected president, Dr. A. W. Spiry, Mobridge, vice president, and Dr. L. D. Harris, Mobridge, secretary-treasurer. Dr. J. E. Curtis, Lemmon, was elected delegate to the state convention. Mr. Lloyd C. Way, U. S. Public Health Service, presented a prepaid method plan for low income group, which provoked considerable discussion.

The Watertown District Medical Society held a dinner meeting, at the Lincoln Hotel, Watertown, South Dakota, Thursday, April 6, 1944. Dr. R. G. Mayer, Aberdeen, South Dakota, talked on "Hematuria", illustrated with lantern slides, and Dr. Owen King, Aberdeen, South Dakota, talked on "Fractures of the Hip", illustrated by a motion picture film demonstrating his technic in operating fractures of the hip.

Lieutenant Charles Hunter Sheldon explained and demonstrated the use of the ultra-rapid color cameras for observation of the brain in head injuries, recently developed at the naval medical center at Bethesda, Maryland, to the members of the Hennepin County Medical society at its meeting April 3rd, in Minneapolis.

Dr. F. J. Hill, former superintendent of the North Dakota state board of health, has been appointed successor to Dr. F. E. Harrington, retiring as Minneapolis' commissioner of health.

Dr. W. A. George of Selby, South Dakota, was elected president of the Northwest District medical society at its meeting held in Mobridge April 2nd, succeeding Dr. J. E. Curtis of Lemmon. Other officers chosen were: Dr. A. W. Spiry, vice president, and Dr. L. D. Harris, secretary-treasurer.

Necrology

F. W. SCHLUTZ, M.D.

The death of Dr. F. W. Schlutz in Chicago on March 8, will bring not only sorrow to his old friends in the Northwest, but a renewed appreciation of the major part he played 34 years ago in establishing Minneapolis as one of the first cities in the country to inaugurate clinics in infant care. Dr. Schlutz came to Minneapolis from Vienna in 1910 where he had been taking graduate work in pediatrics and almost at once started an infant welfare clinic at one of the settlement houses, acting as its physician. In that year 104 babies out of every 1,000 died during their first year. That this figure has been reduced to 24 is due largely to the heroic efforts of Dr. Schlutz and his associates. For several years he was head of the department of pediatrics at the University of Minnesota which he left to take a similar position at the University of Chicago. His teachings have inspired thousands of students and his reputation as a pediatrician has spread throughout the country.

Dr. Willoughby G. Dye, 71, formerly of Deer Lodge, Montana, died in Los Angeles, April 1. Although Dr. Dye and his family moved to California twenty years ago he never severed his association with Montana and two years ago revisited Deer River, his native city.

Dr. J. G. Stone, 62, Montrose, South Dakota, died suddenly from a heart attack at his home March 31.

Dr. H. B. Beeson, 62, formerly of Grand Forks, North Dakota, recently of Racine, Wisconsin, died at his home in Racine, March 20. Dr. Beeson was a well-known horticulturist and a member of the Masonic fraternity.

Dr. William de la Barre, 72, Minneapolis, died at his home March 26. Dr. de la Barre had come to Minneapolis in 1878 and practiced medicine in that city for 37 years.

Dr. Rudolph M. Gunderson, 63, Lake Park, Minnesota, died at his home April 2. Dr. Gunderson was a graduate of Hamline university and the University of Minnesota medical school. He practiced in Lake Park 31 years. He was a member of the Mystic Shrine and was company physician for the local division of the Northern Pacific railway.

Dr. Hildus Augustine Ness, 72, Mabel, Minn., died in the Lutheran hospital in LaCrosse, Wisconsin, April 4. Dr. Ness had practiced in Mabel for 46 years.

Dr. John Jay Ogg, 81, Marshall, Minn., died March 22 after a long illness.

Dr. John William Campbell, 68, of Fargo, North Dakota, died April 13 at his home. Dr. Campbell, born in Hanover, Canada, had practiced medicine in North Dakota more than forty years.

Future Meetings

SOUTH DAKOTA STATE MEDICAL ASSOCIATION

Sixty-third Annual Session
May 21, 22, 23, 1944

Marvin Hughtt Hotel, Huron, South Dakota

Sunday, May 21—First meeting of Council, 2 P. M. First meeting of House of Delegates, 8 P. M. Smoker and stag party for all members and guests, 9:30 P. M.

Monday, May 22, 1944

7:30 A. M.—Committee Meetings.

9:00—Motion Picture—Gastric Ulcer.

9:30—Is Vaccine Therapy of Value in Allergies of Children?—A. V. Stoesser, M.D., Minneapolis, Minn., Associate Professor of Pediatrics, University of Minnesota Medical School.

10:15—Hydronephrosis: Diagnosis and Treatment—Frederic E. B. Foley, M.D., St. Paul, Minn., Clinical Associate Professor of Urology, University of Minnesota Medical School.

11:00—Intermission.

11:15—Comments on the Usefulness of Various Anesthetic Agents—John S. Lundy, M.D., Rochester, Minn., Head of Section of Anesthesia, Mayo Clinic.

12:00—Lunch.

1:30 P. M.—Presidential Address—J. C. Ohlmacher, M.D., Vermillion, S. D., Dean of Medical School, University of South Dakota.

2:00—Chronic Mastitis in Its Relation to Cancer of the Breast—Harry A. Oberhelman, M.D., Chicago, Ill., Professor of Surgery, Loyola University School of Medicine.

2:45—Intermission.

3:00—Indications for Bronchoscopy in Pulmonary Disease (with motion pictures)—Paul H. Holinger, M.D., Chicago, Ill., Professor of Otolaryngology, University of Illinois College of Medicine.

3:45—Medical Leadership in Public Health—C. C. Applewhite, M.D., Kansas City, Mo., Director, District No. 7, U. S. Public Health Service.

4:30—Intermission.

5:00—House of Delegates Meeting.

6:30—Annual Banquet—President J. C. Ohlmacher Presiding.

The Agenda of Post-War Medical Practice—C. M. Wilhelmj, M.D., Omaha, Neb., Dean of School of Medicine, Creighton University.

Prepayment Plans for Medical Care—William F. Braasch, M.D., Rochester, Minn., Member Board of Trustees, American Medical Association, Member National Physicians Committee.

Tuesday, May 23, 1944

8:00 A. M.—Council Meeting.

9:00—Motion Picture—Gastric Ulcer.

9:30—Hysterectomy: Selection of the Appropriate Operation for the Particular Case—Virgil S. Counsellor, M.D., Rochester, Minn., Associate Professor of Surgery, Mayo Foundation, University of Minnesota.

10:15—Complications in the Urinary Tract During Pregnancy—William F. Braasch, M.D., Rochester, Minn., Head of Section on Urology, Mayo Clinic.

11:00—Intermission.

11:15—A Comparative Radiologic Study of Primary Atypical and Bacterial Pneumonia—Major George H. Stein, MC, Sioux Falls, S. D., Radiologist, Sioux Falls Army Air Field.

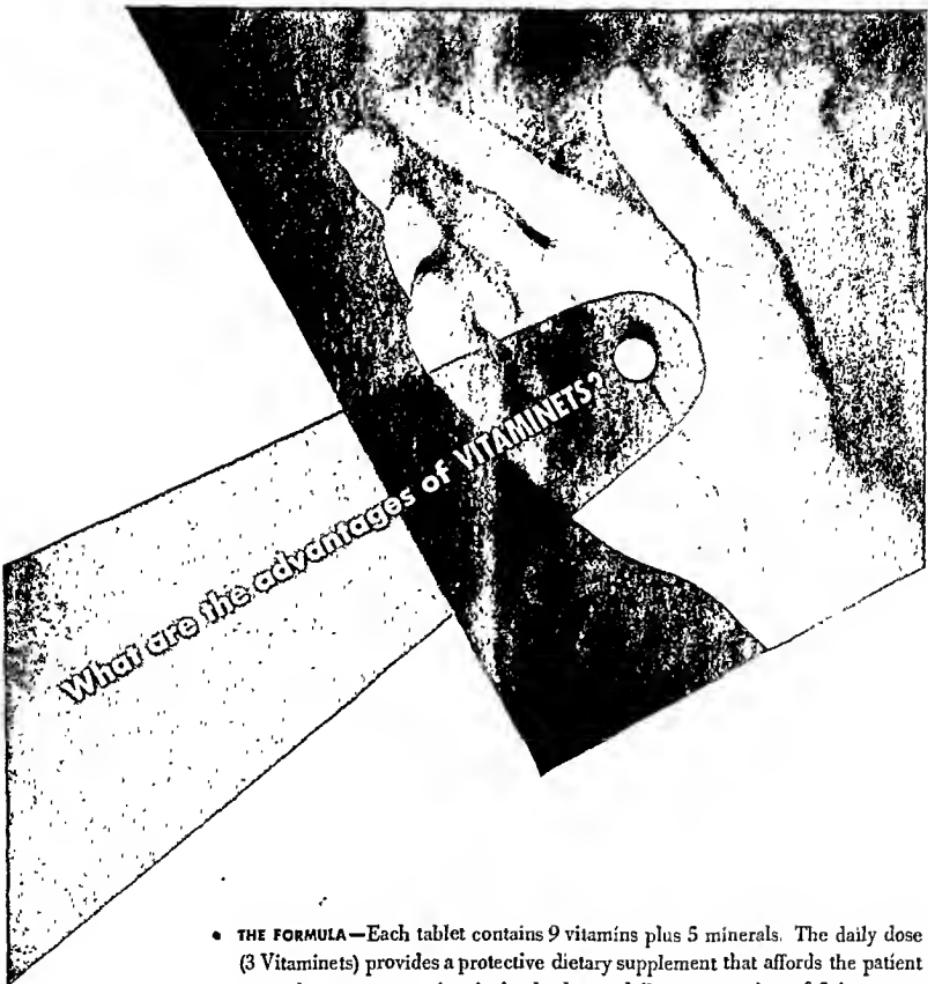
12:00—Lunch. Round Table Discussion of X-ray Films. N. J. Nessa, M.D., Sioux Falls, presiding. Major George H. Stein, Leader.

1:30 P. M.—Address of President-Elect—D. S. Baughman, M.D., Madison, S. D.

2:00—Some Interesting Aspects of Aviation Physiology and Medicine—Lt. Col. Saul Michalover, MC, Sioux Falls, S. D., Chief of Medical Service, Sioux Falls Army Air Field.

2:45—Placenta Abruptio, H. E. Harvey, M.D., Lincoln, Neb.

3:30—Adjournment.



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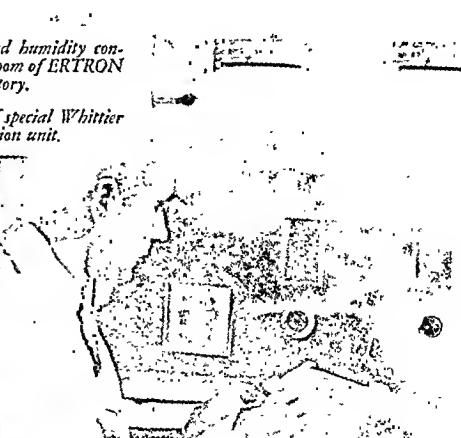
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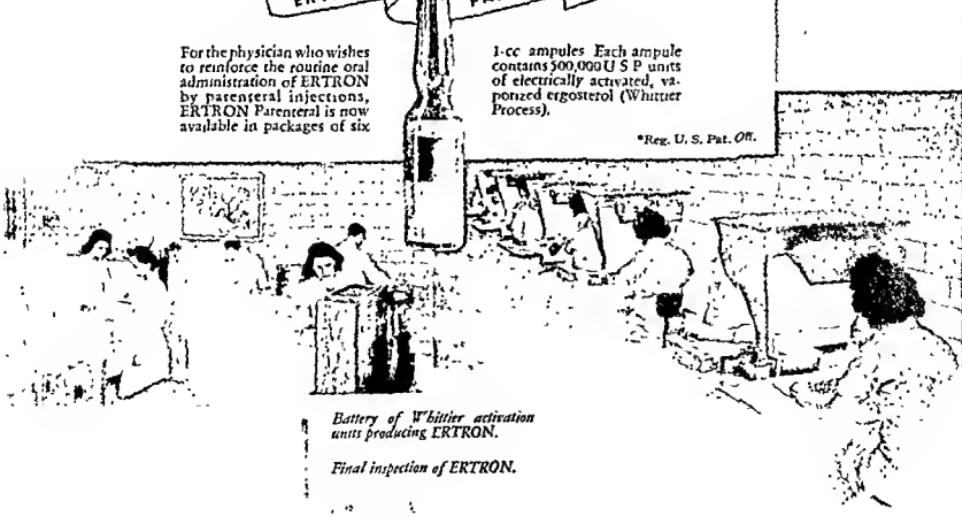
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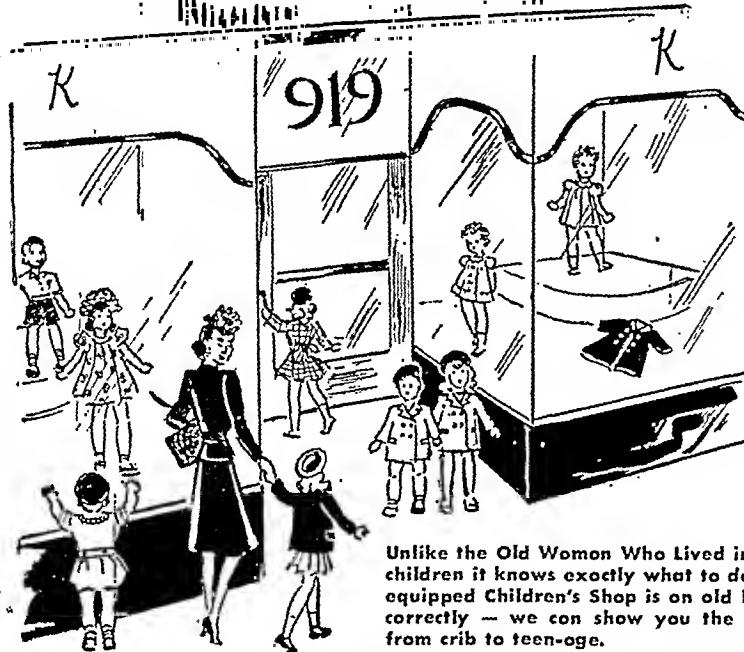
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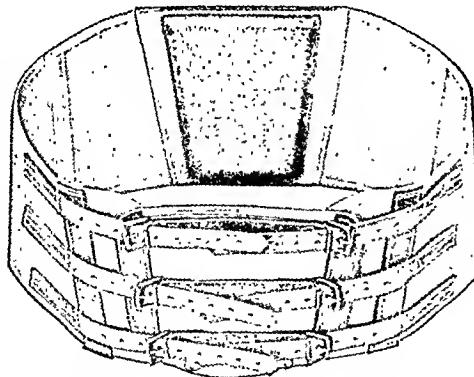
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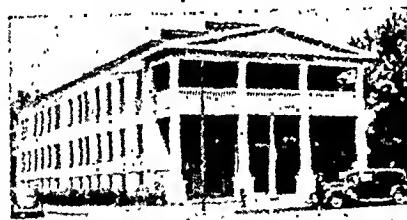
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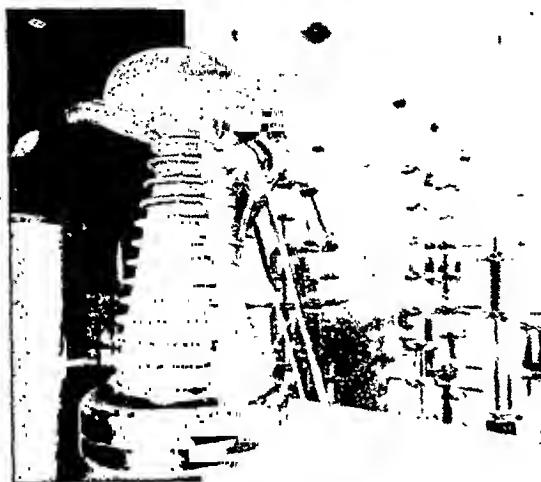
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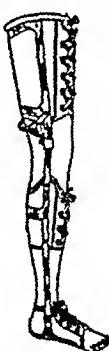
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